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The Architects' JOURNAL for February 26, 1959

THE ARCHITECTS' JOURNAL



standard contents

every issue does not necessarily contain all these contents, but they are the regular features which continually recur

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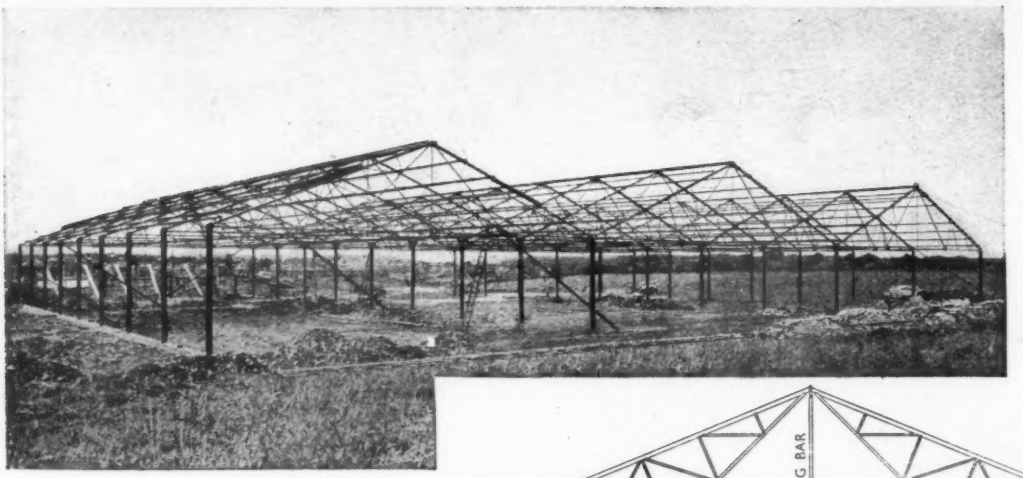
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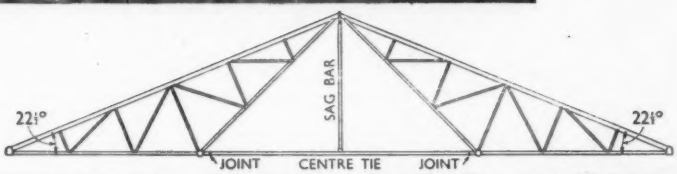
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★ A glossary of abbreviations of Government Departments and Societies and Committees of all kinds, together with their full address and telephone numbers. The glossary is published in two parts—A to Ii one week, Il to Z the next. In all cases where the town is not mentioned the word LONDON is implicit in the address.

AA	Architectural Association, 34/6, Bedford Square, W.C.1.	Museum 0974
AAI	Association of Art Institutions. Secy.: W. L. Stevenson, College of Art, Hope Street, Liverpool 1.	Royal 1826
ABS	Architects' Benevolent Society. 66, Portland Place, W.1.	Langham 5533
ABT	Association of Building Technicians. 1, Ashley Place, S.W.1.	Victoria 0447-8
ACGB	Arts Council of Great Britain. 4, St. James's Square, S.W.1.	Whitehall 9737
ADA	Aluminium Development Association. 33, Grosvenor Street, W.1.	Mayfair 7501/8
ARCUK	Architects' Registration Council. 68, Portland Place, W.1.	Langham 5861
BAE	Board of Architectural Education. 66, Portland Place, W.1.	Langham 5721
BC	Building Centre. 26, Store Street, Tottenham Court Road, W.C.1.	Museum 5400
BCC	British Colour Council. 13, Portman Square, W.1.	Welbeck 4185
BCCF	British Cast Concrete Federation. 105. Uxbridge Road, Ealing, W.5.	Ealing 9621
BCIRA	British Cast Iron Research Association. Alvechurch, Birmingham.	Redditch 716
BDA	British Door Association. 10, The Boltons, S.W.10.	Fremantle 8494
BE	Building Exhibition. 11, Manchester Square, W.1.	Hunter 1951
BEDA	British Electrical Development Association. 2, Savoy Hill, W.C.2.	Temple Bar 9434
BIA	British Ironfounders' Association. 145, Vincent Street, Glasgow, C.2.	Glasgow Central 2891
BID	Building Industries Distributors. 52, High Holborn, W.C.1.	Chancery 7772
BINC	Building Industries National Council. 11, Weymouth Street, W.1.	Langham 2785
BOT	Board of Trade. Whitehall Gardens, Horseguards Avenue, Whitehall, S.W.1.	Trafalgar 8855
BRS	Building Research Station. Bucknalls Lane, Watford.	Garston 4040
BSA	Building Societies Association. 14, Park Street, W.1.	Mayfair 0515
BSI	British Standards Institution. British Standards House, 2, Park St.,W.1.	Mayfair 9000
CABAS	City and Borough Architects Society. C/o S. A. G. Cook, A.R.I.B.A., Borough Architect and Director of Housing, Town Hall, High Holborn, W.C.1.	Holborn 3411
CAS	County Architects' Society. C/o S. Vincent Goodman, F.R.I.B.A., Shire Hall, Bedford.	Bedford 67444
CCA	Cement and Concrete Association. 52, Grosvenor Gardens, S.W.1.	Belgravia 6661
CDA	Copper Development Association. 55, South Audley Street, W.1.	Grosvenor 8811
COID	Council of Industrial Design. 28, Haymarket, S.W.1.	Trafalgar 8000
CPRE	Council for the Preservation of Rural England. 4, Hobart Place, S.W.1.	Sloane 4280
CUC	Coal Utilization Council. 3, Upper Belgrave Street, S.W.1.	Sloane 9116
CVE	Council for Visual Education. 13, Suffolk Street, Haymarket, S.W.1.	Reading 72255
DIA	Design and Industries Association. 13, Suffolk Street, S.W.1.	Whitehall 0540
EJMA	English Joinery Manufacturers' Association (Incorporated). Sackville House, 40, Piccadilly, W.1.	Regent 4448
EPNS	English Place-Name Society. 7, Selwyn Gardens, Cambridge.	
FAS	Faculty of Architects and Surveyors. 68, Gloucester Place, W.1.	Welbeck 9966
FASS	Federation of Associations of Specialists and Sub-Contractors, 14, Bryanston Street, W.1.	Welbeck 1781
FBBDO	Fibre Building Board Development Organization Ltd. (Fidor), Stafford House, Norfolk Street, W.C.2.	Covent Garden 3008
FBI	Federation of British Industries. 21, Tothill Street, S.W.1.	Whitehall 6711
FC	Forestry Commission. 25, Savile Row, W.1.	Regent 0221
FCMI	Federation of Coated Macadam Industries. 37, Chester Square, S.W.1.	Sloane 1002
FDMA	The Flush Door Manufacturers Association Ltd. Trowell, Nottingham.	Ilkeston 623
FLD	Friends of the Lake District. Pennington House, nr. Ulverston, Lancs.	Ulverston 201
FMB	Federation of Master Builders., 33, John Street, W.C.1. Tel.: Chancery 7583 (6 lines)	
FPC	The Federation of Painting Contractors, St. Stephen's House, S.W.1.	Whitehall 3902
FRHB	Federation of Registered House Builders. 82, New Cavendish Street, W.1.	Langham 4341
GPDA	Gypsum Plasterboard Development Association. 11, Ironmonger Lane, E.C.2.	Monarch 8888
GC	Gas Council. 1, Grosvenor Place, S.W.1.	Sloane 4554
GG	Georgian Group. 2, Chester Street, S.W.1.	Belgravia 3081
HC	Housing Centre. 13, Suffolk Street, Pall Mall, S.W.1.	Whitehall 2881
IAAS	Incorporated Association of Architects and Surveyors. 29, Belgrave Square, S.W.1.	Belgravia 3755
ICA	Institute of Contemporary Arts. 17-18, Dover Street, Piccadilly, W.1.	Grosvenor 6186
ICE	Institution of Civil Engineers. 1, Great George Street, S.W.1.	Whitehall 4577
IEE	Institution of Electrical Engineers. Savoy Place, Victoria Embankment, W.C.2.	Temple Bar 7676
IES	Illuminating Engineering Society. 32, Victoria Street, S.W.1.	Abbey 5215
IGE	Institution of Gas Engineers. 17, Grosvenor Crescent, S.W.1.	Sloane 8266
IHVE	Institution of Heating and Ventilating Engineers. 49, Cadogan Square.	Sloane 1601/3158
IIBDID	Incorporated Institute of British Decorators and Interior Designers. 100, Park Street Grosvenor Square, W.1.	Mayfair 7086





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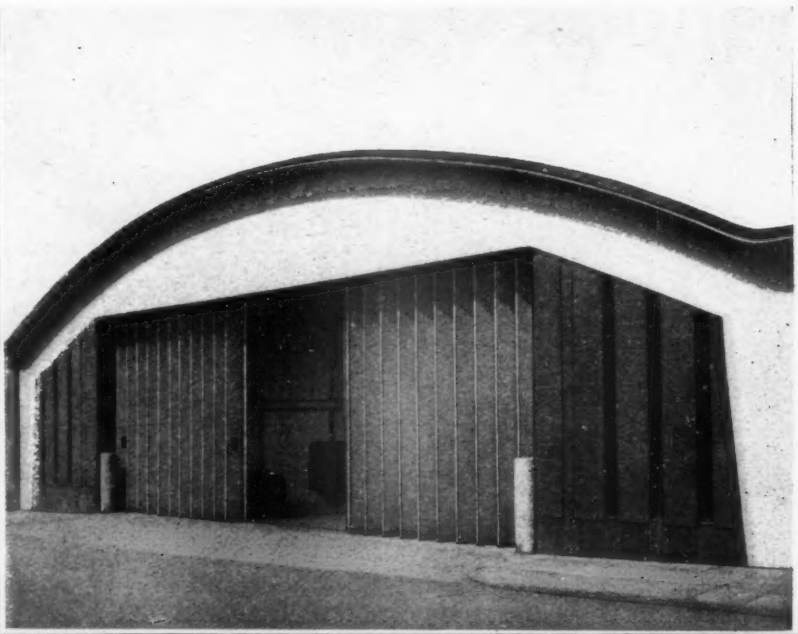
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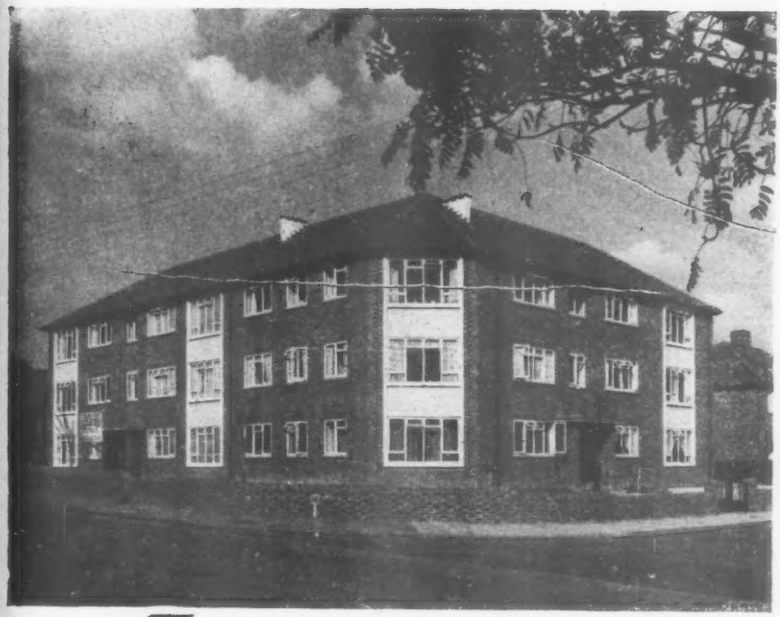
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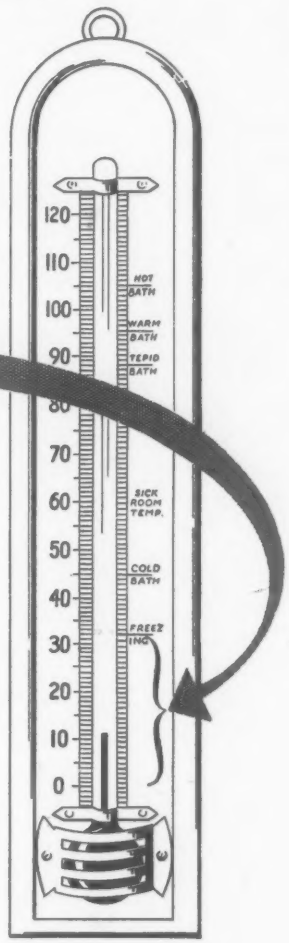
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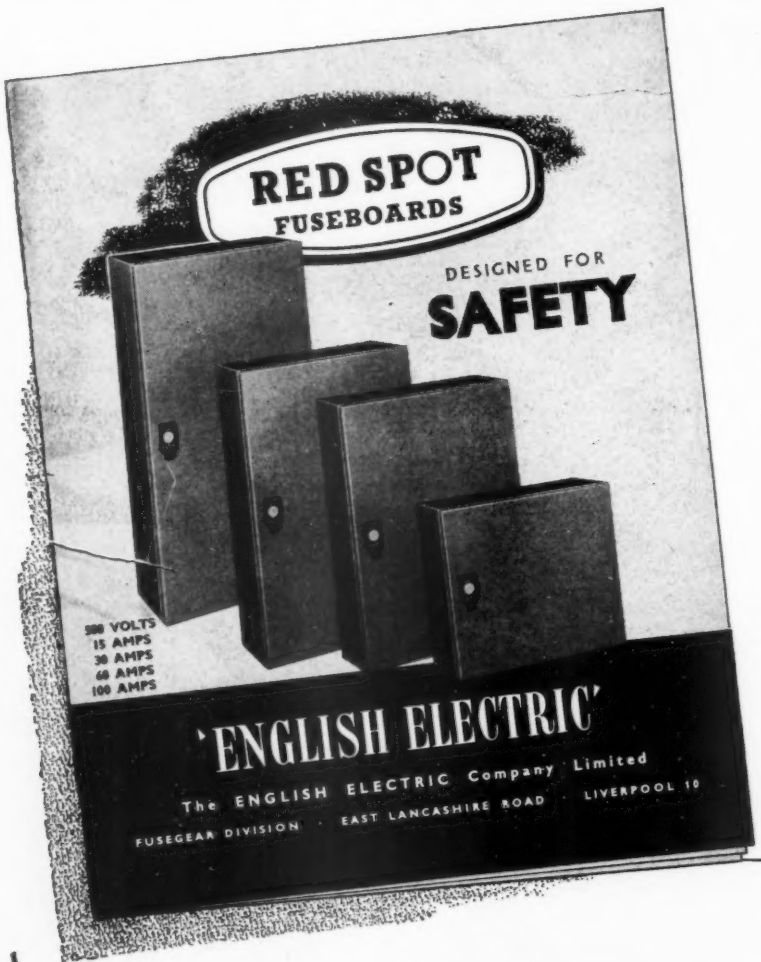
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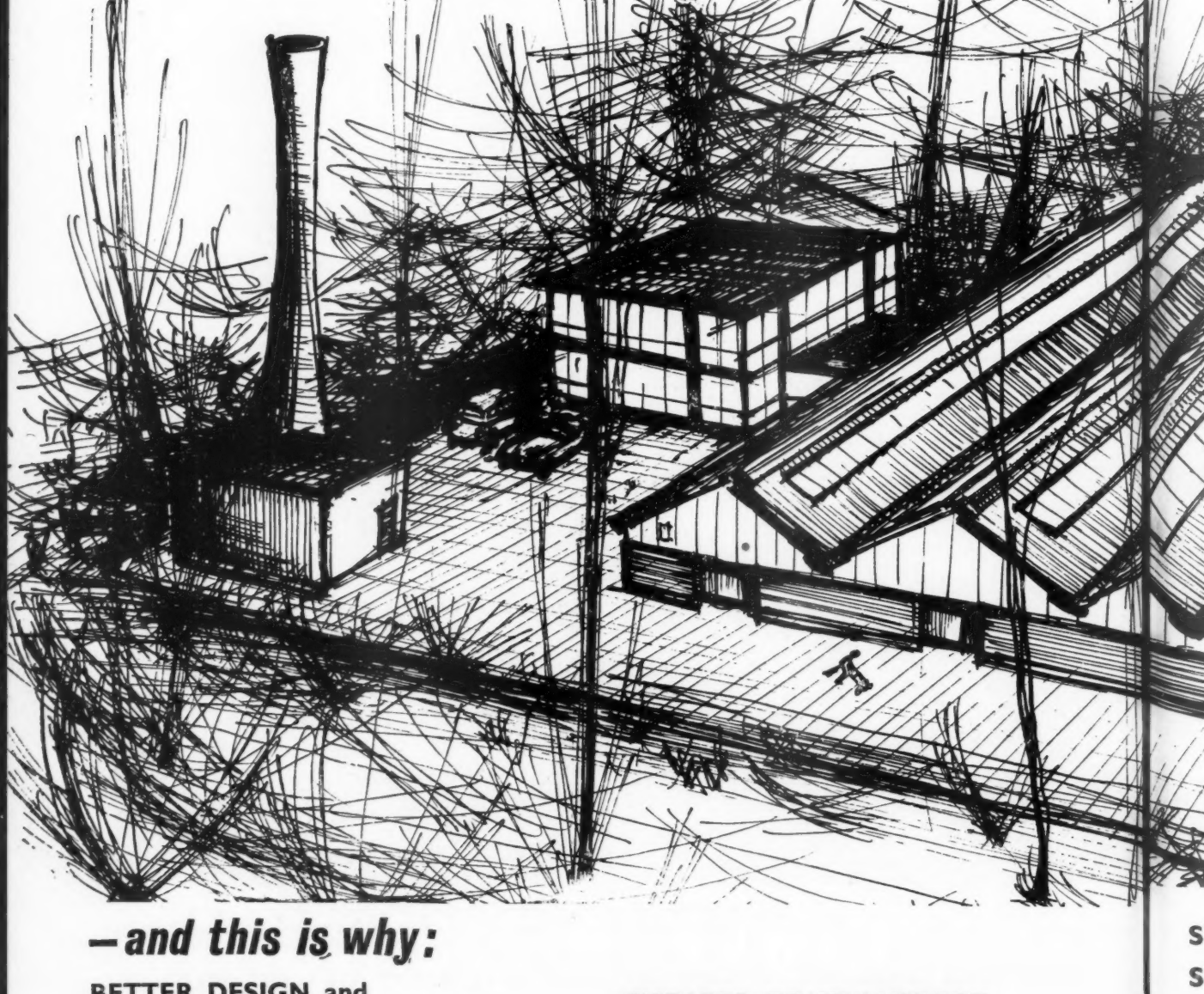
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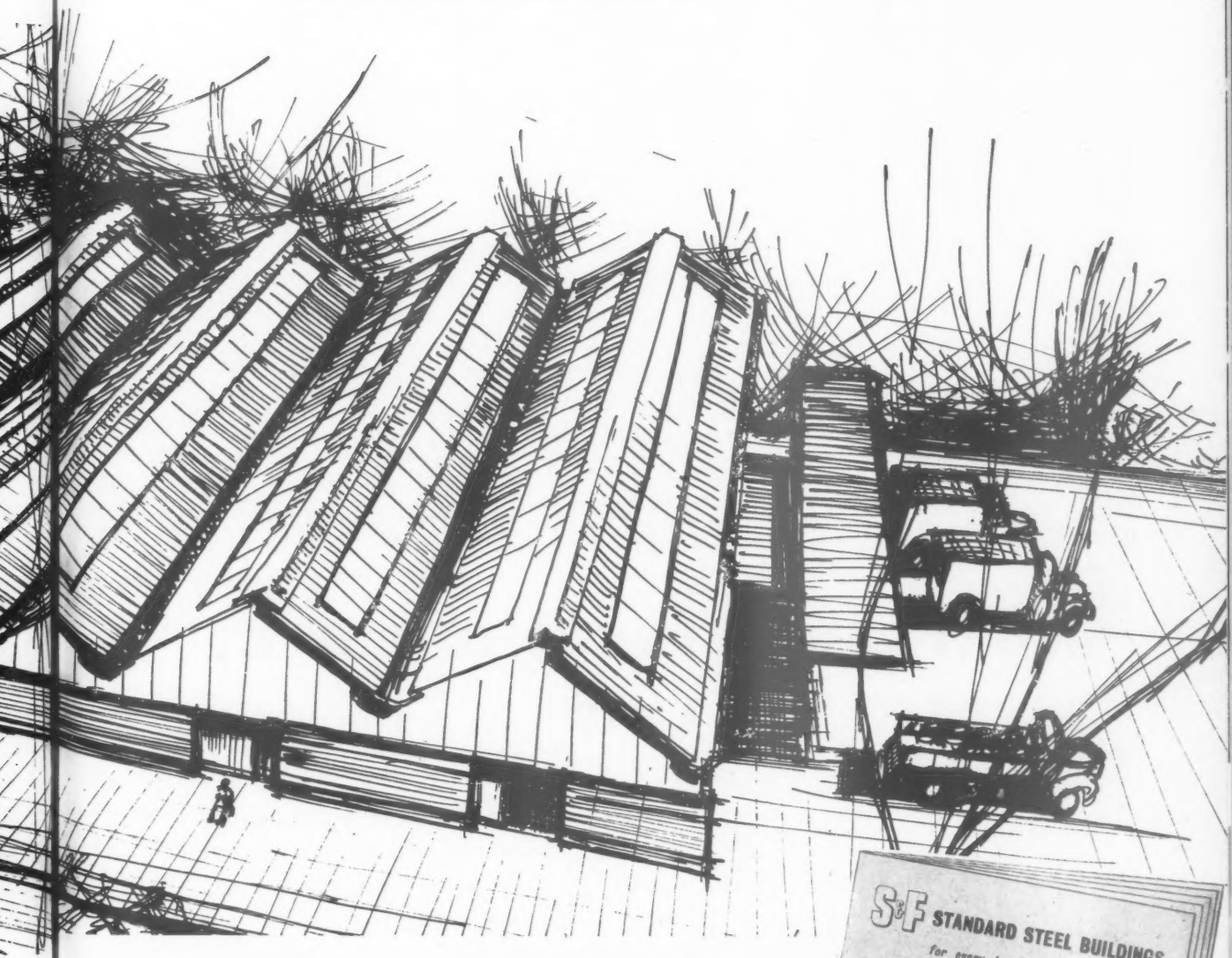
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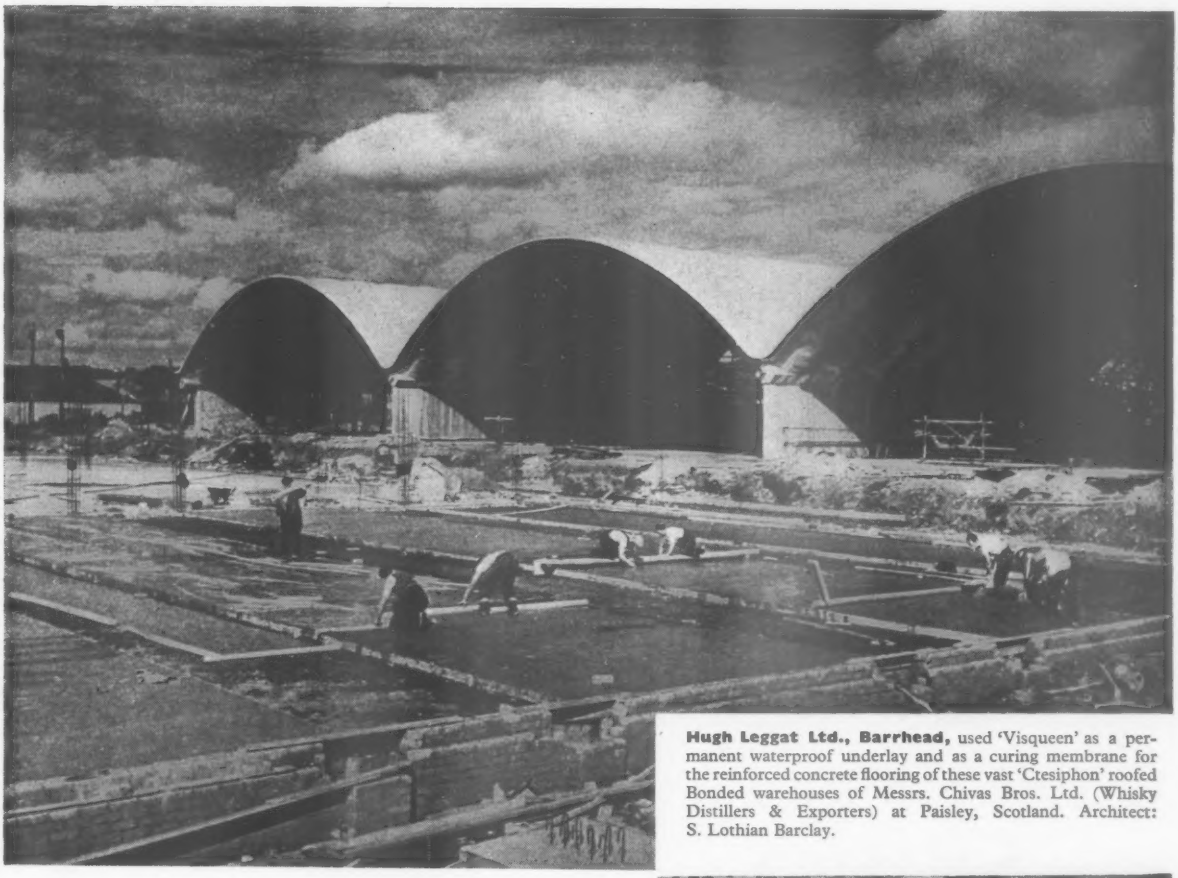
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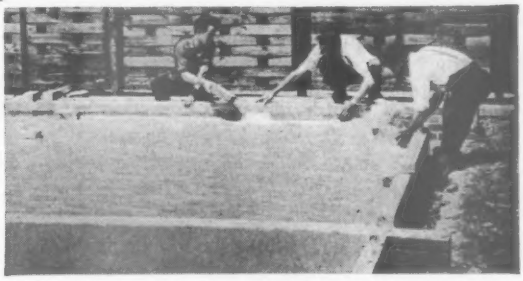
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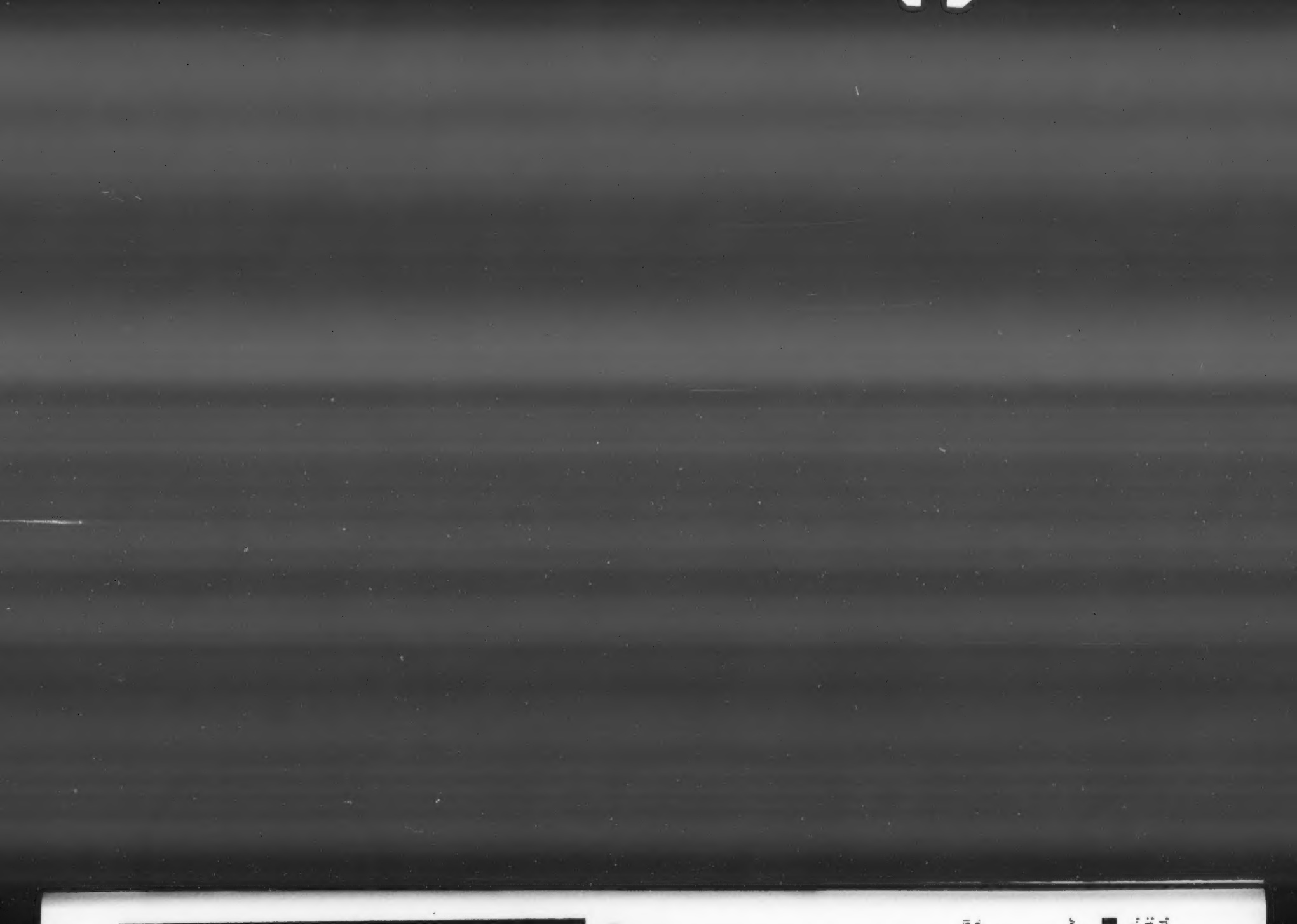
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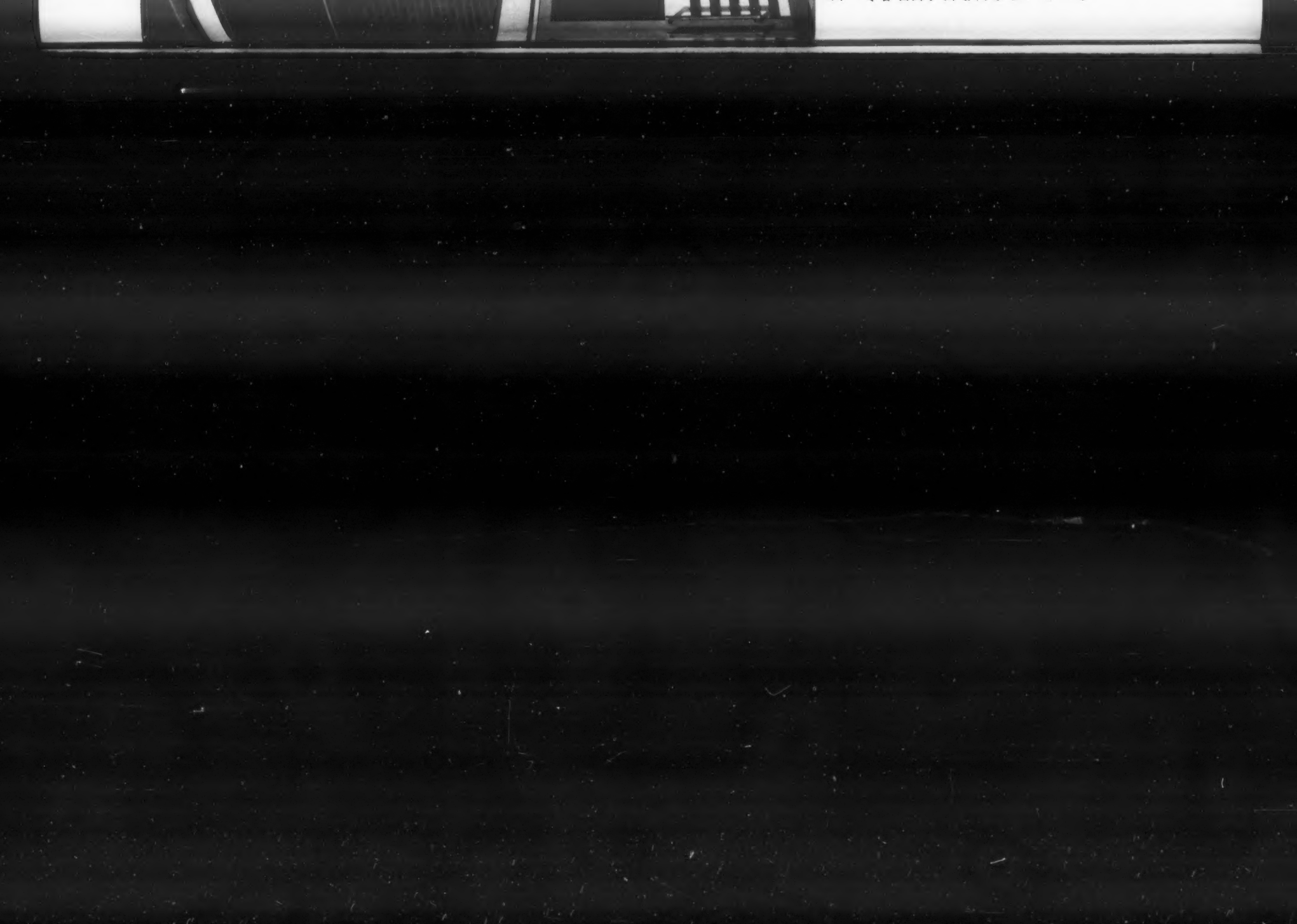
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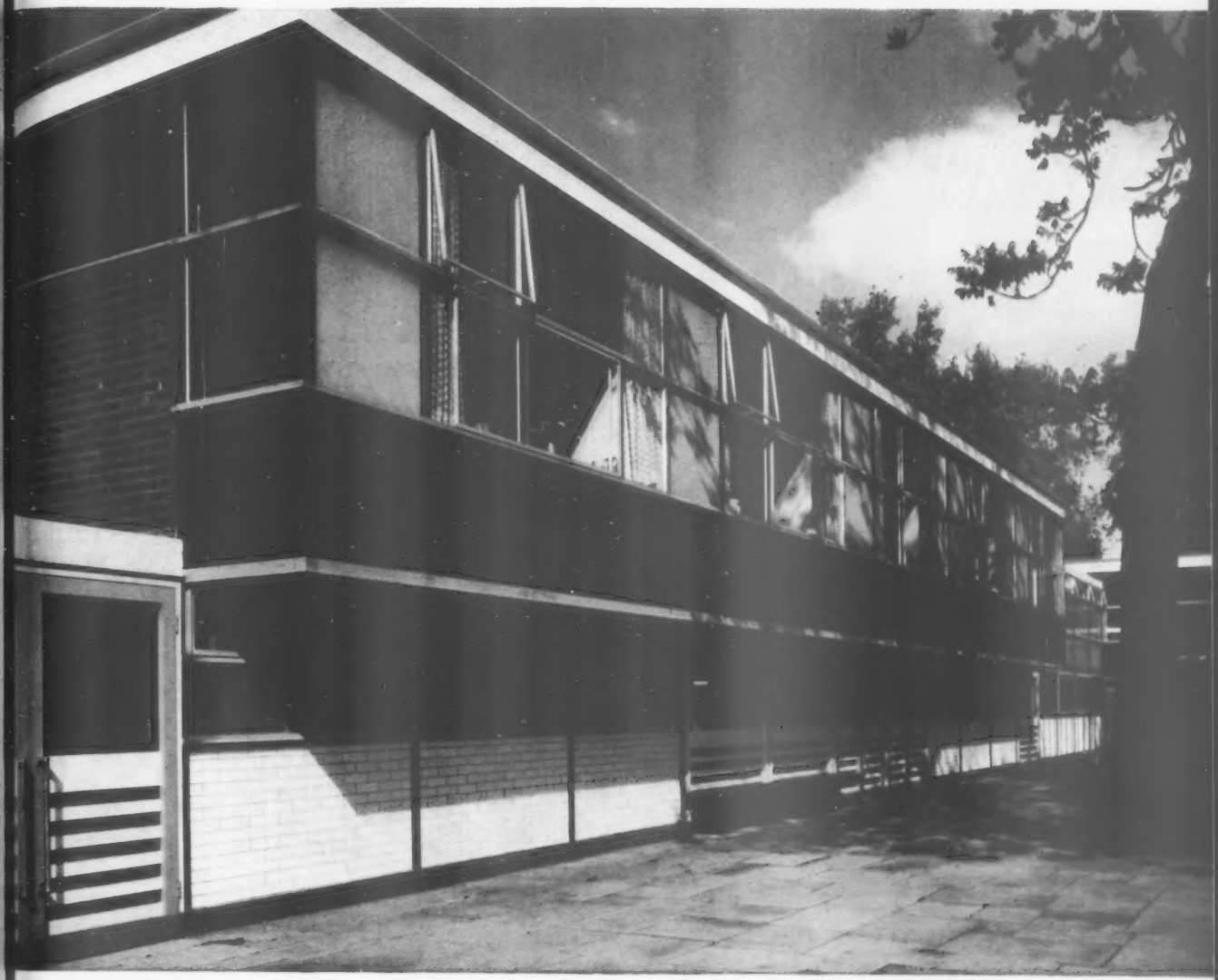
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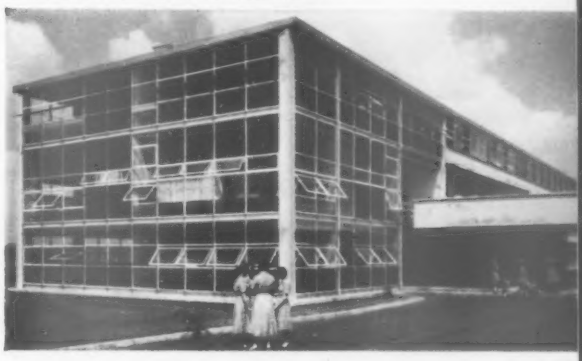


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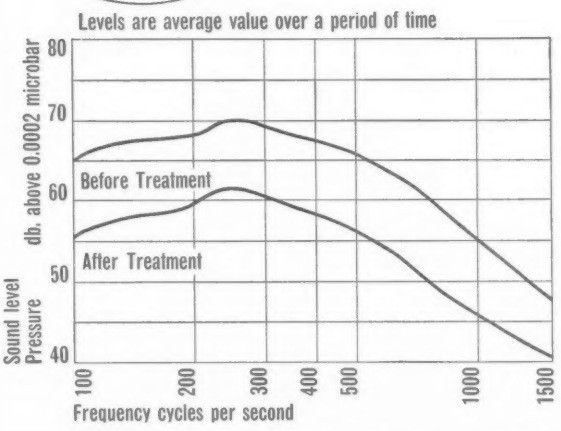
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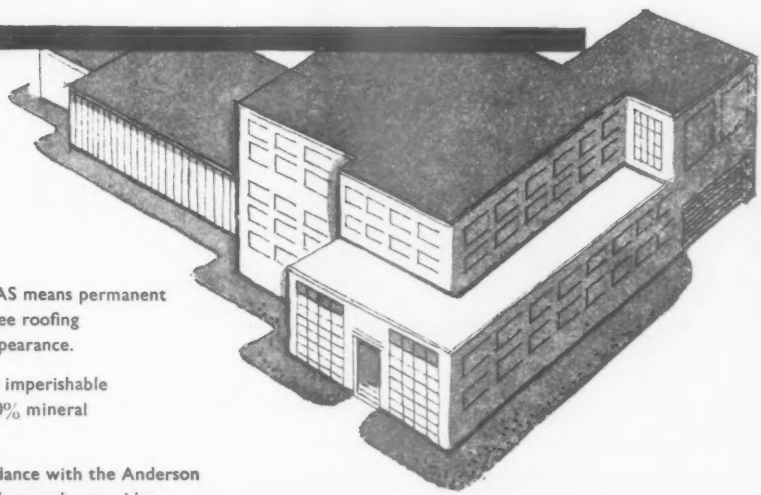
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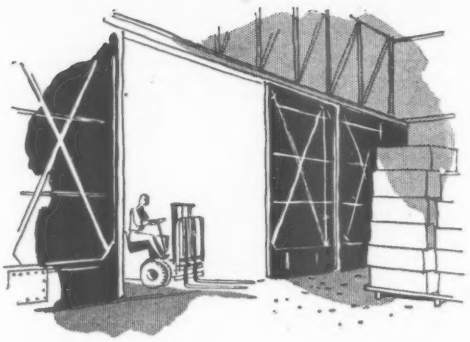
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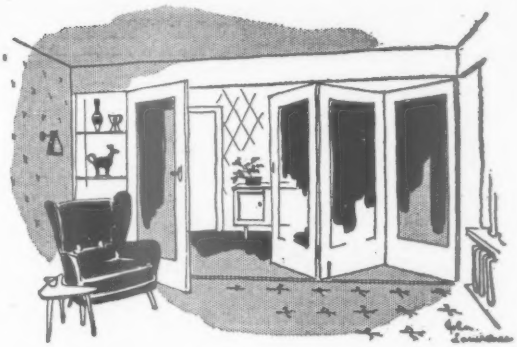
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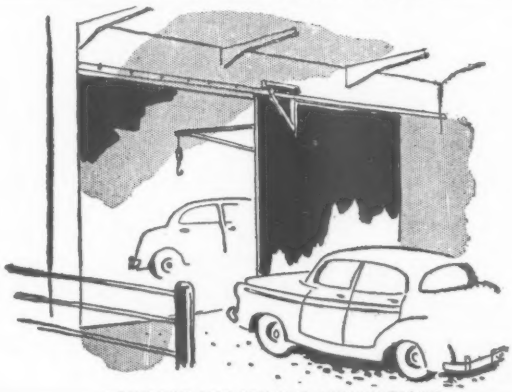
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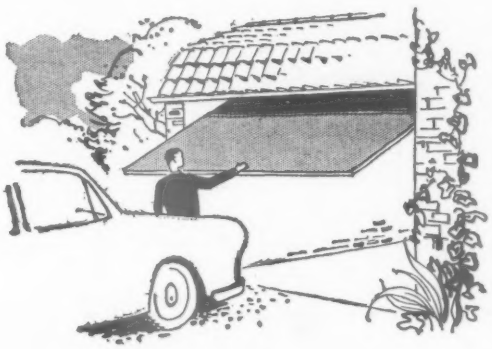
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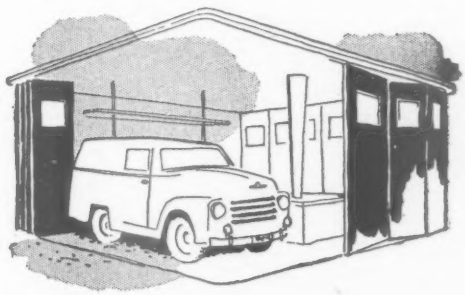
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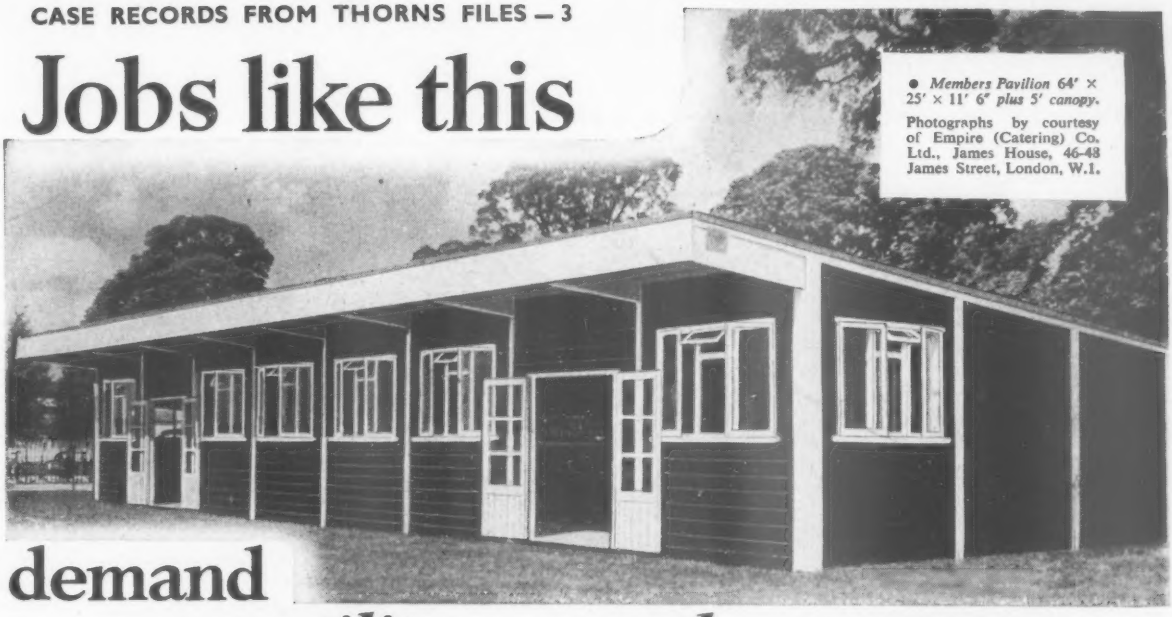
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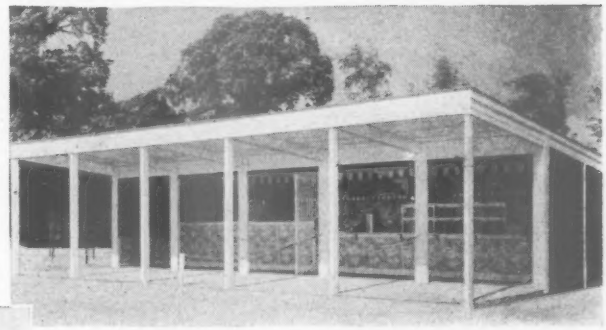
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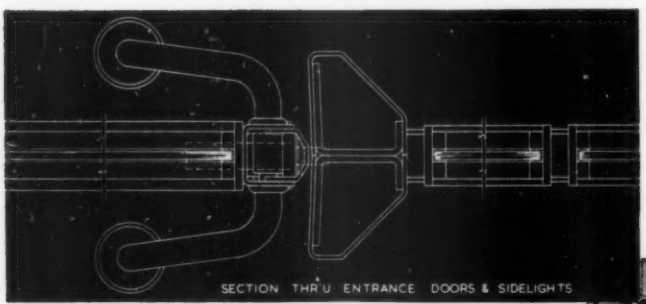
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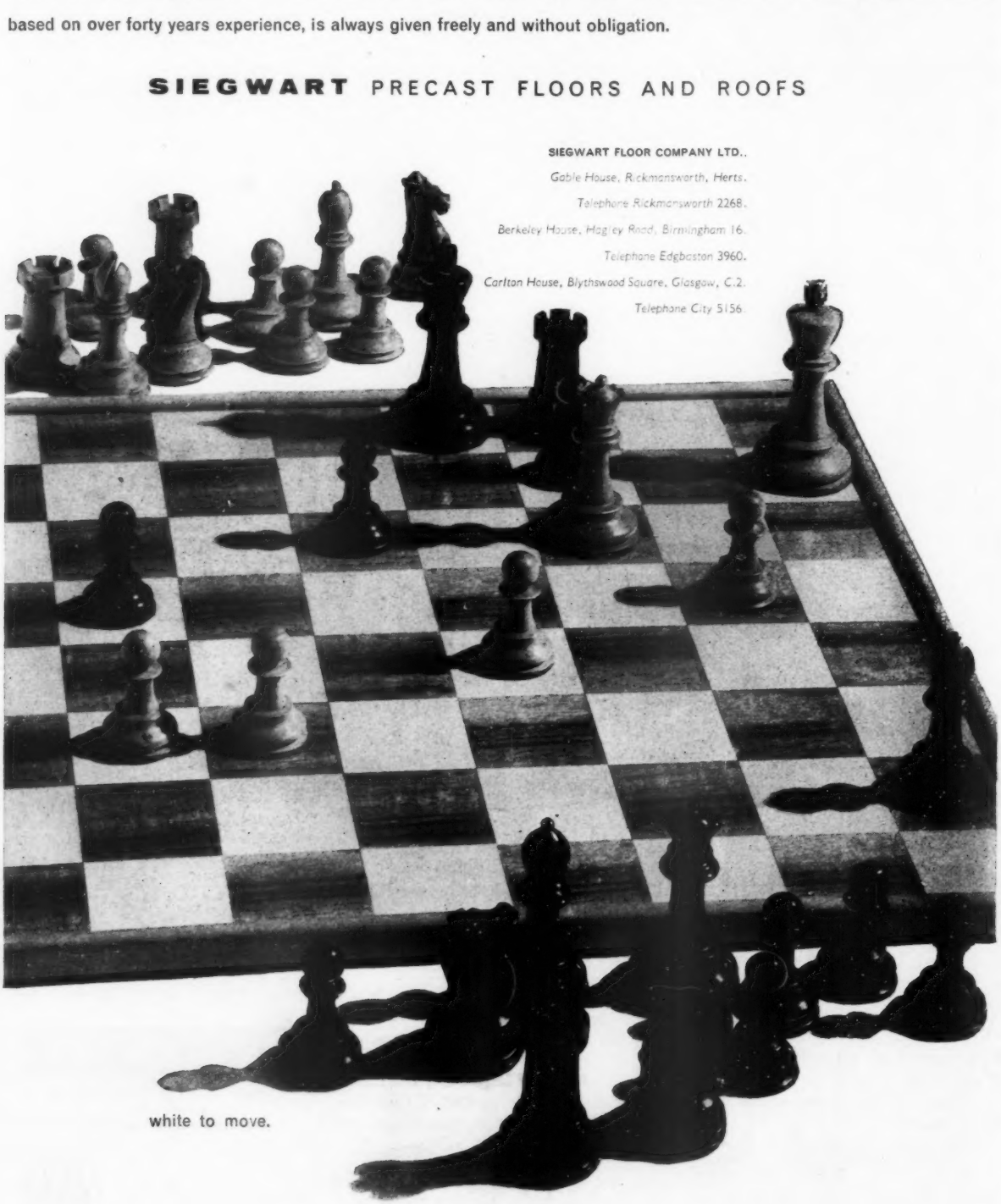
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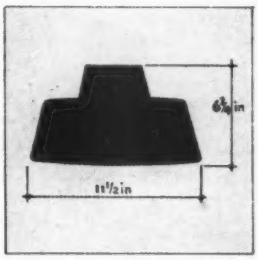
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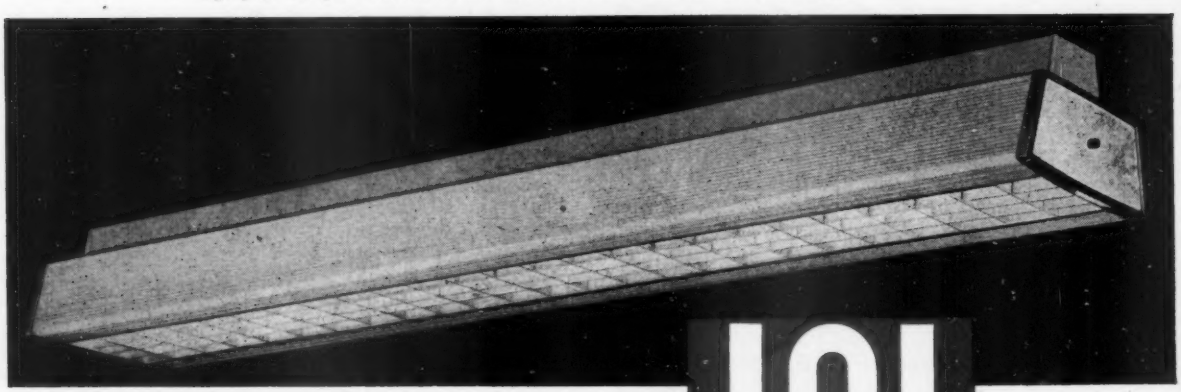
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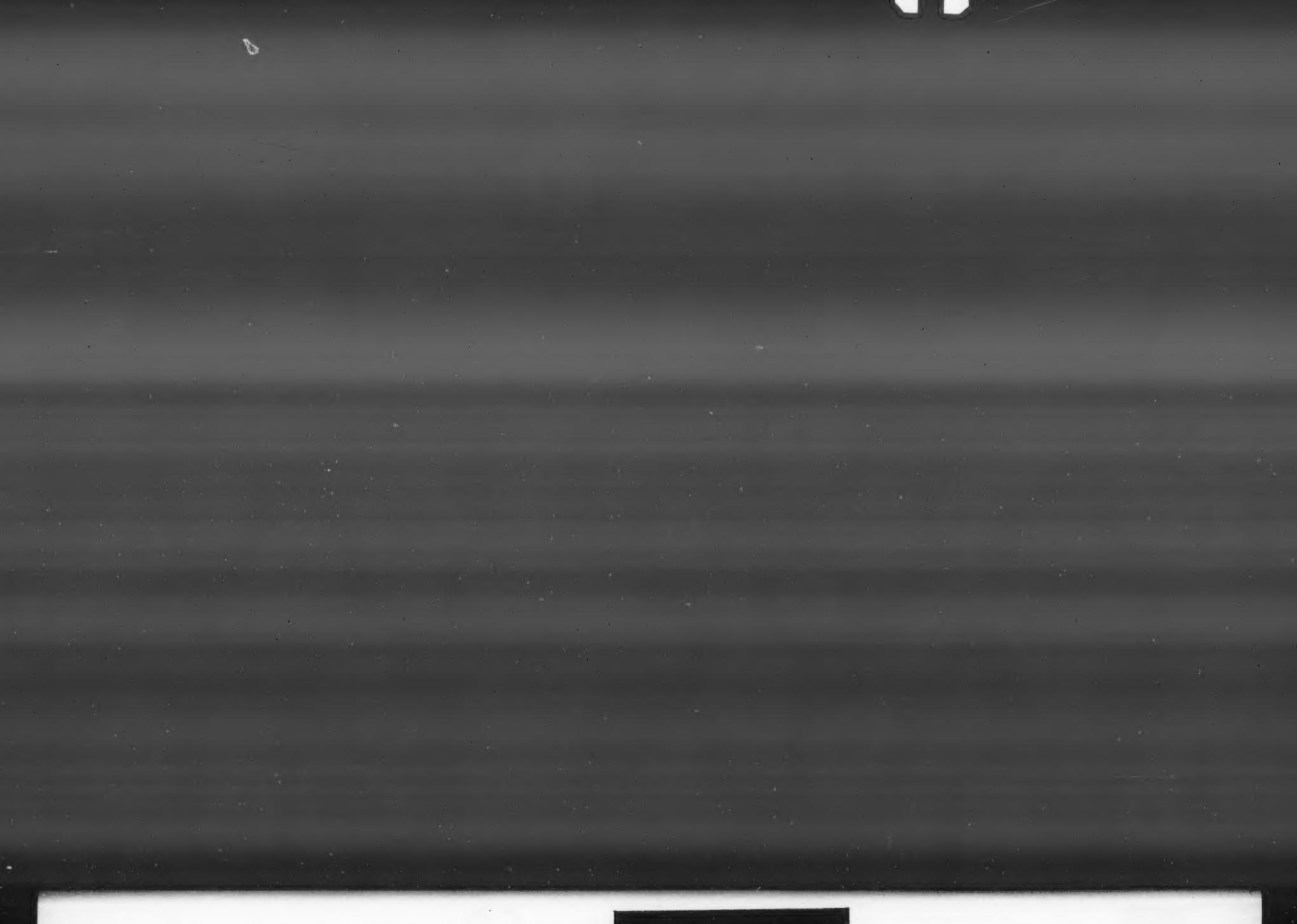


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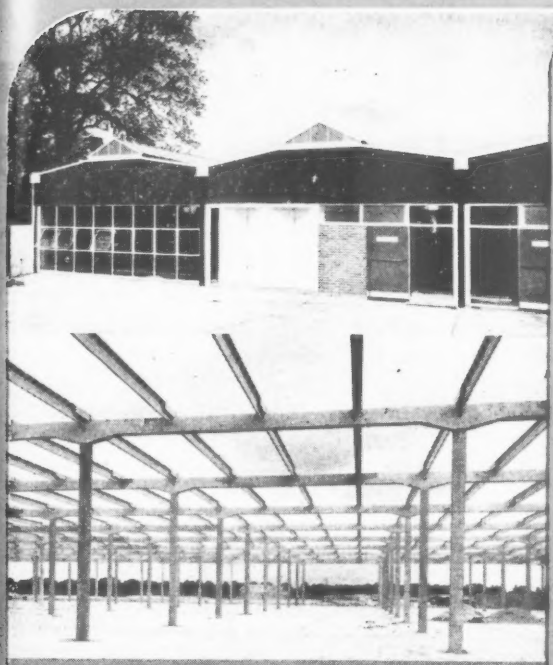
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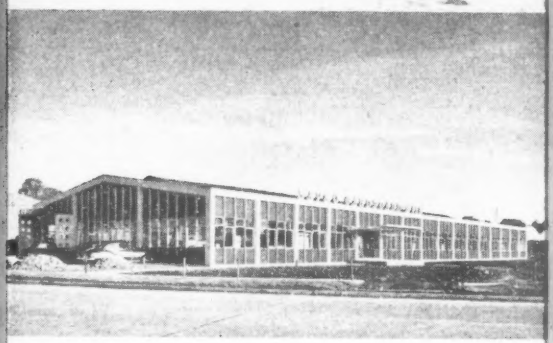
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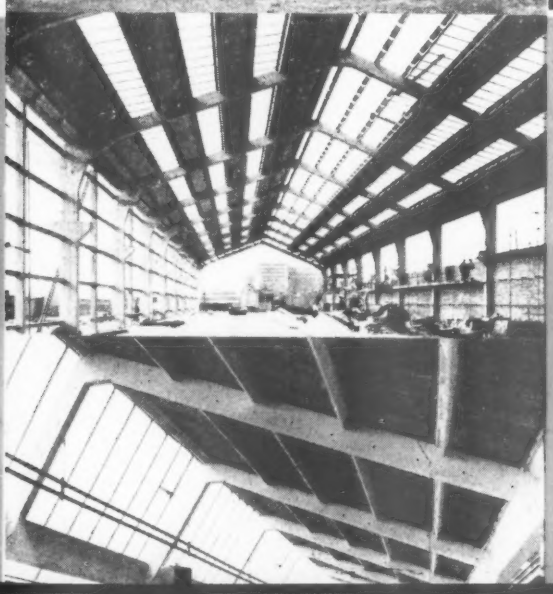












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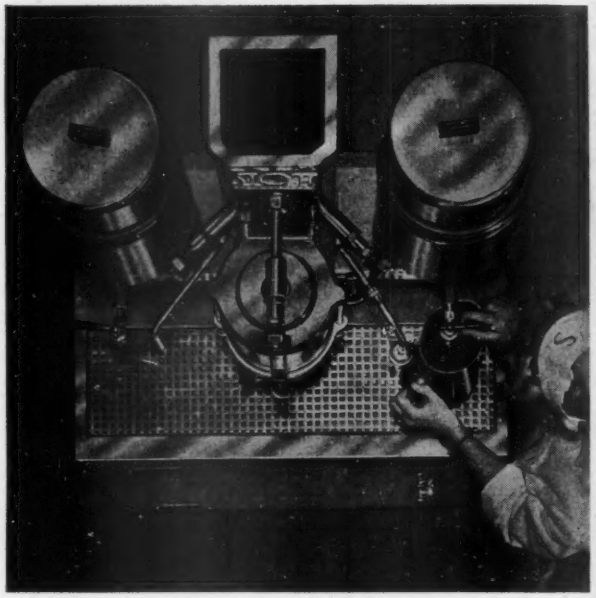
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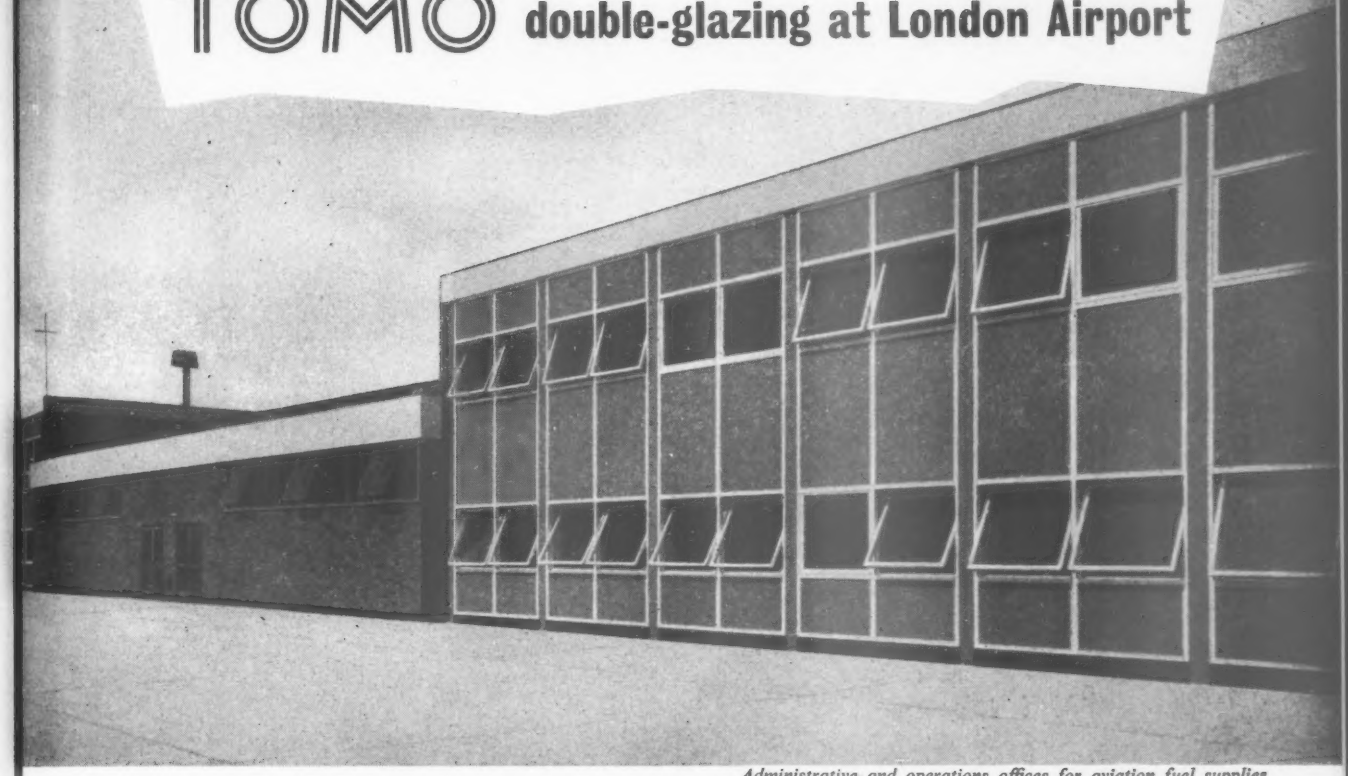
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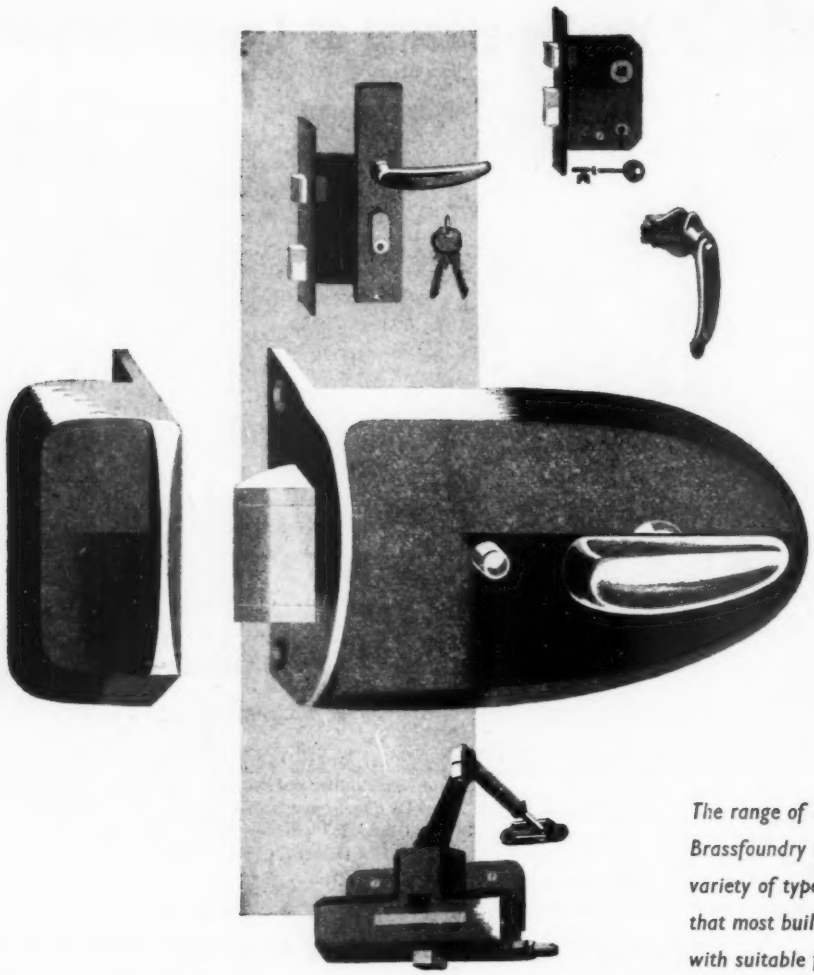
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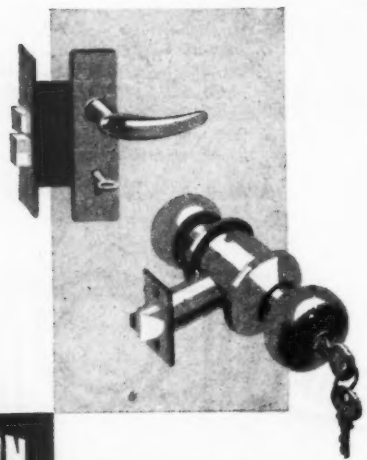
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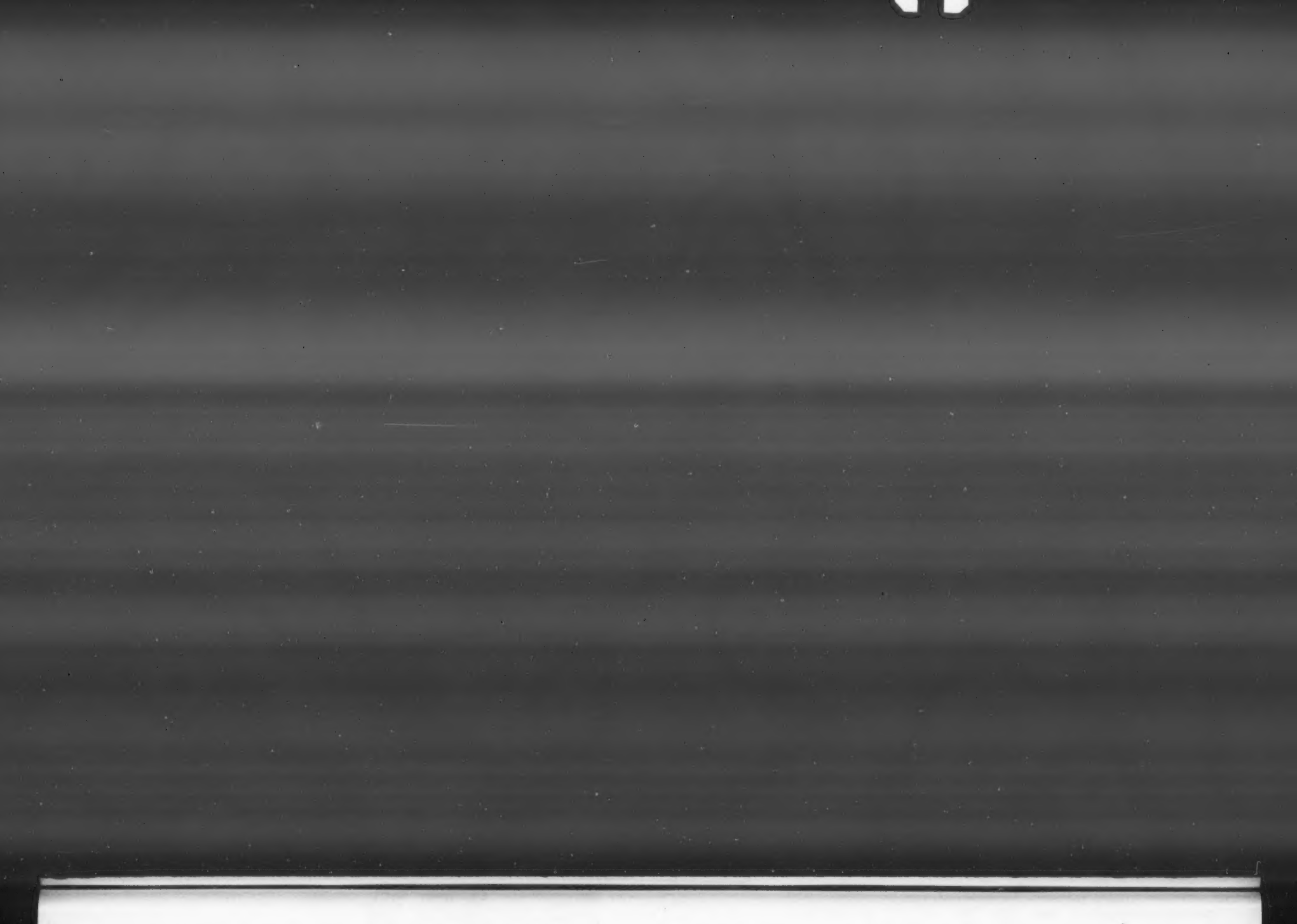
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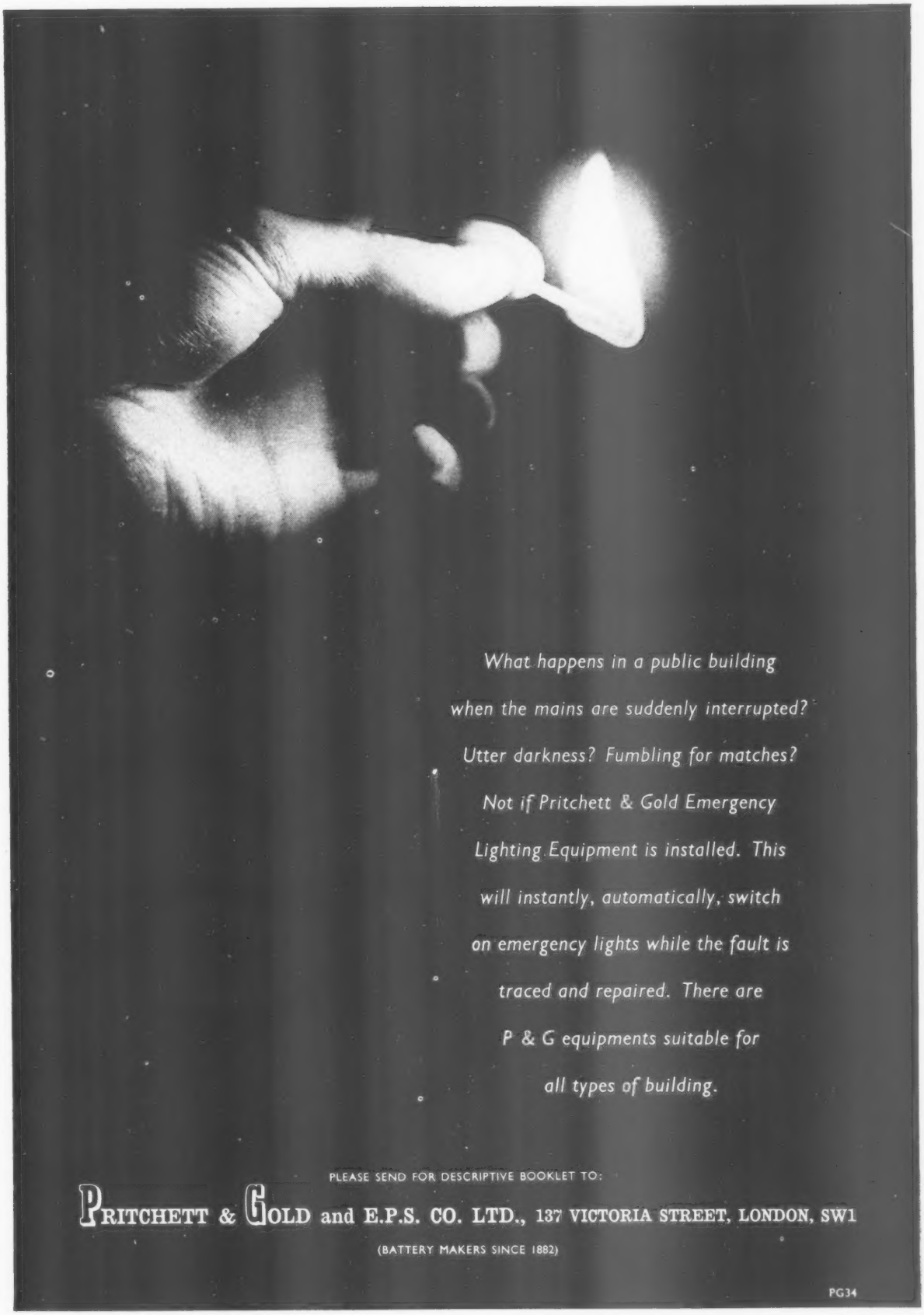
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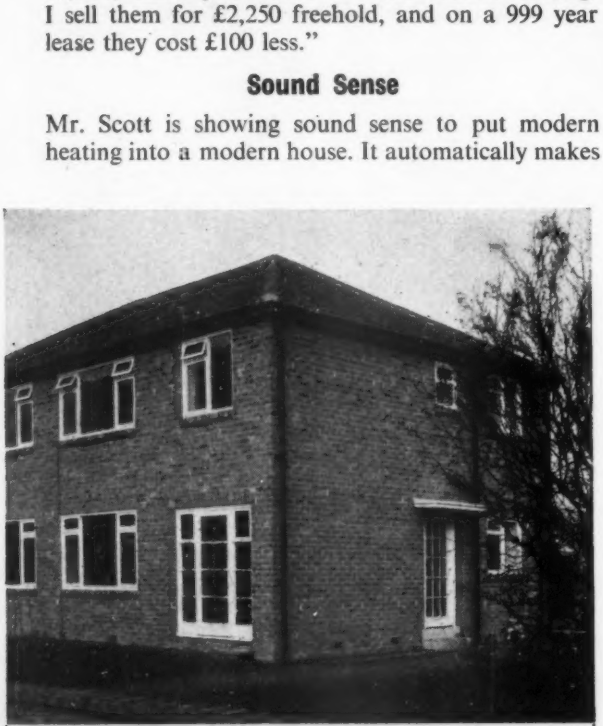
Certainly it can be done– I'm doing it," says well-known Leeds builder, Sydney Scott

We asked Sydney Scott, prominent Leeds builder, about the houses he's building

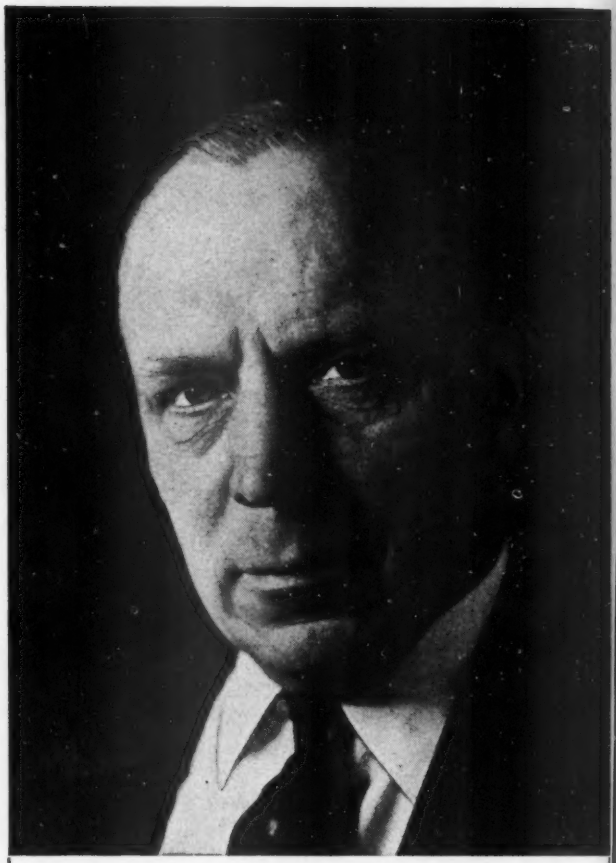
"Yes, I design and build houses – three-bedroom houses, mind you – with oil fired central heating. I sell them for £2,250 freehold, and on a 999 year lease they cost £100 less."

Sound Sense

Mr. Scott is showing sound sense to put modern heating into a modern house. It automatically makes the property more valuable, more desirable. Makes it easier to sell. More profitable to sell. Mr. Scott may be selling a bargain, but you can be quite certain he's not losing on the deal. And he knows about building houses – he's put up over a thousand since the war, more than 500 of them in the last four years.



This is one of the Scott three-bedroom houses with oil fired heating. It's the home of the Taylor family.



Here's the man who does it – who is building some of Britain's warmest small houses at some of Britain's most reasonable prices. Mr. Sydney Scott has been designing and building houses for a long time now. He runs a prosperous family business – his two sons and his wife are with him.

The Lot

These houses have the lot: three good-sized bedrooms; modern open planning downstairs; fitted cupboards throughout; kitchen fitments; air extractor in kitchen; separate W.C.; and front and back gardens with garage space. The oil fired heating includes 8 radiators (4 of them double ones) and automatic timing and temperature control plus separate built-in chambers to house both the boiler and oil storage tank. All this for £2,150!

"It's Just Wonderful"

Mrs. Jack Taylor is lucky enough to live in a Scott house. And one of the most important reasons for buying the house was the oil fired heating. In her own words, "It's just wonderful. Less work – why, I can sit down and knit after lunch, and that's with



Mr. and Mrs. Jack Taylor with Jennie, their daughter, in the lounge of their Scott house. You can see how roomy it is, and you can also see the sort of radiators Mr. Scott puts in.

three kids to worry about, too." Mr. Taylor is just as pleased. "There's nothing wrong with this house and with oil fired heating – it's a winner!"

What Your Customers Want

A recent enquiry covering 5,000 families in the U.K. showed that what the customer looks for in home heating now is:

1. **A better standard of house heating – constant, even warmth in the home.**
2. **Economy.**
3. **An automatic labour-saving heating system – one which virtually runs itself.**
4. **Cleanliness and convenience – no dirt, dust or ashes to be cleared away.**

Like Mr. Scott, you can give your customers all these advantages – with oil fired heating, which is the cheapest form of automatic heating. And by installing oil fired heating in houses you build, those houses will be more profitable to sell. And don't forget, the whole oil firing installation can be bought as part of the house mortgage.

Co-operation With Building Trades

Shell-Mex and B.P. Ltd. are playing the major part in the development of the new domestic oil firing market, working in very close co-operation with the building and heating trades. What's more, they have over 100 domestic oil firing representatives throughout the country. Shell-Mex and B.P. Ltd. are advertising extensively in the consumer press and every day are creating more and more prospects for oil fired heating. Customers wanting oil firing will go to *you*. Shell-Mex and B.P. Ltd. will be happy to help you satisfy them. Free technical advice is available at all times.

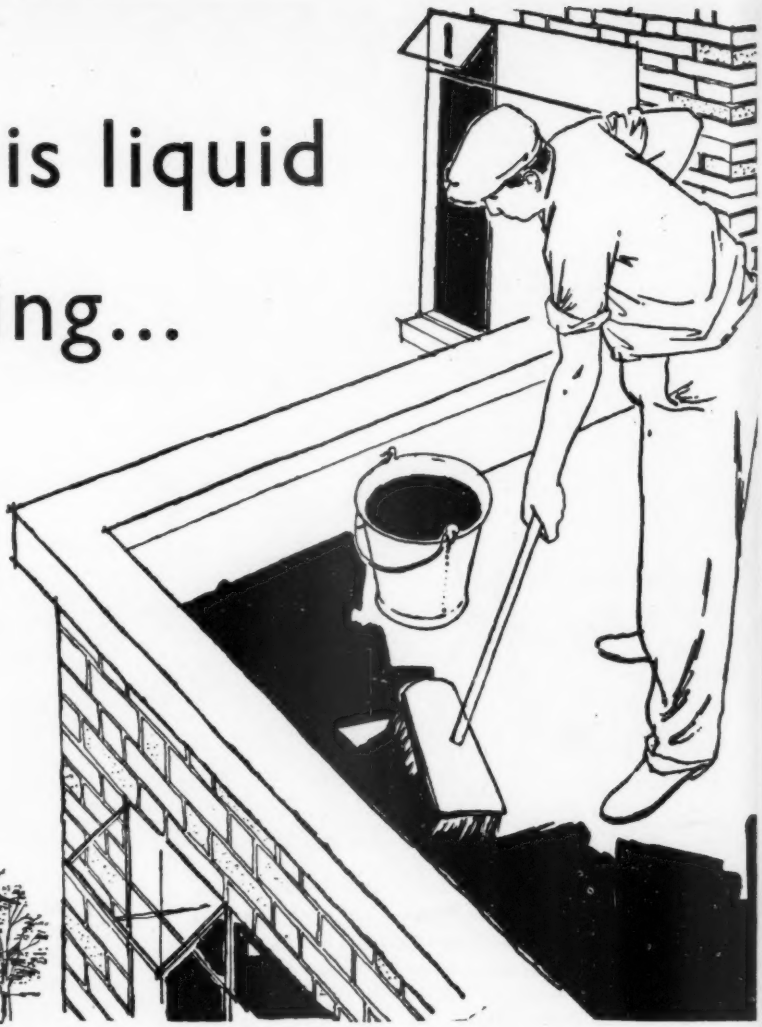
The Taylors, like many thousands of families throughout the country, get their fuel supplied through the Authorised Distributors of Shell-Mex and B.P. Ltd. That's why they get a good fuel fast and efficiently. With this sort of service, Mr. Scott knows all his customers will be satisfied.

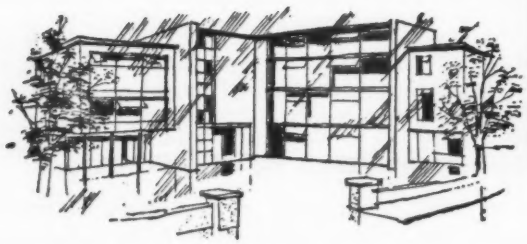
If there's anything at all you'd like to know about oil fired heating; any particular problem you'd like solved, get in touch with

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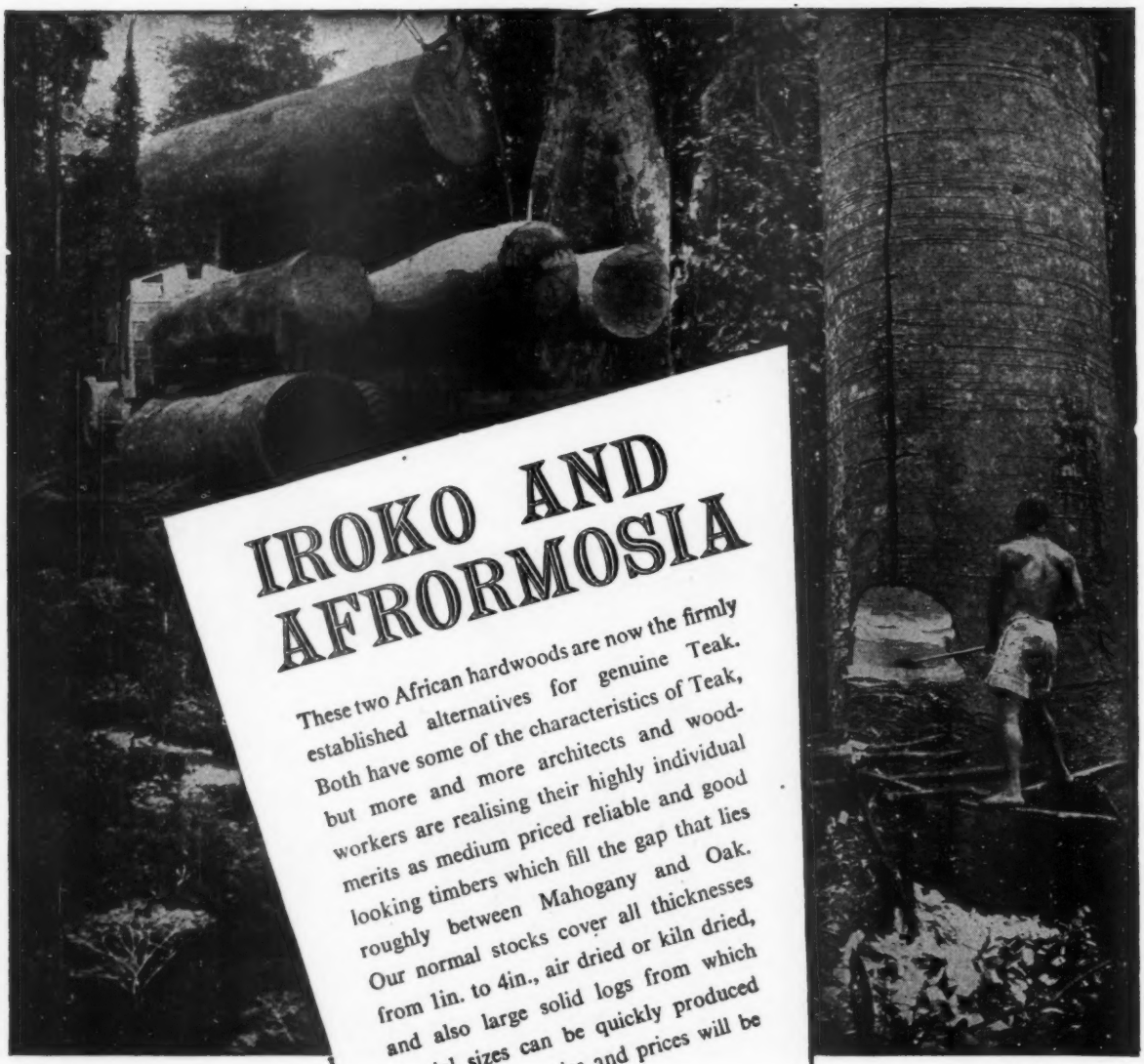
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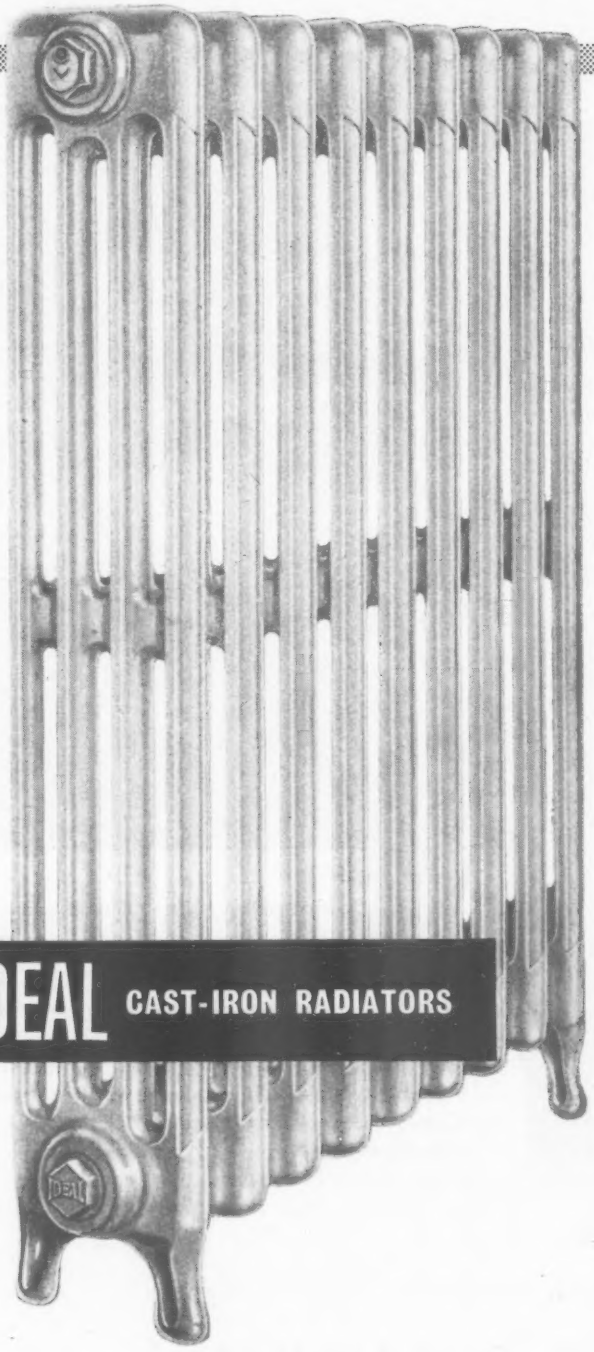
These two African hardwoods are now the firmly established alternatives for genuine Teak. Both have some of the characteristics of Teak, but more and more architects and woodworkers are realising their highly individual merits as medium priced reliable and good looking timbers which fill the gap that lies roughly between Mahogany and Oak. Our normal stocks cover all thicknesses from 1in. to 4in., air dried or kiln dried, and also large solid logs from which special sizes can be quickly produced to order. Samples and prices will be sent on request.

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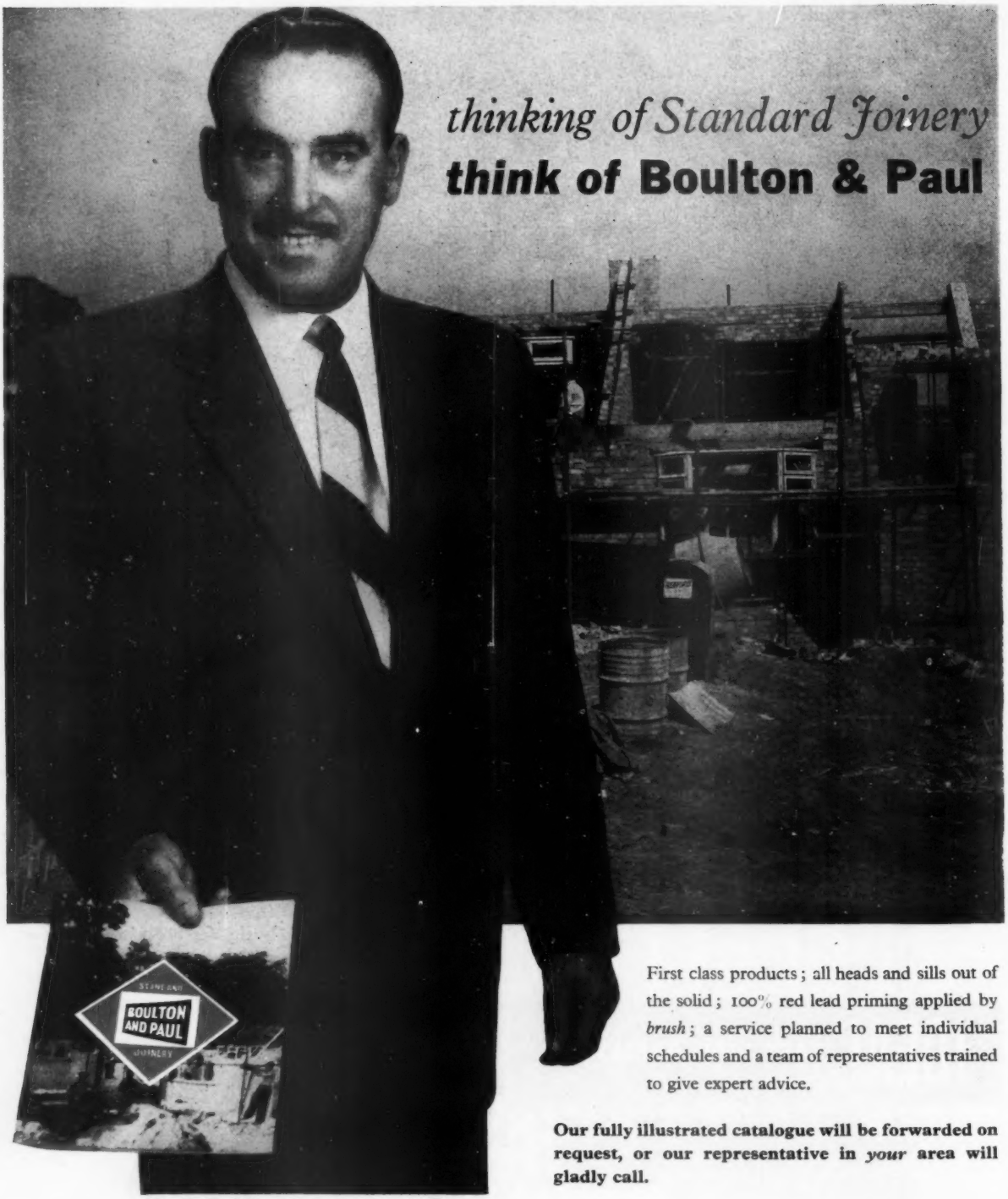
Because
they resist corrosion,
Ideal cast-iron radiators have
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This is further ensured by their
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And when adaptability is considered,
Ideal column radiators offer the
advantages of sectional construction
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to add or remove sections.

Pictured is the Ideal No. 4 Neo-Classic Radiator. The Neo-Classic is available with two, four or six columns per section and in four heights.

IDEAL-Standard

437

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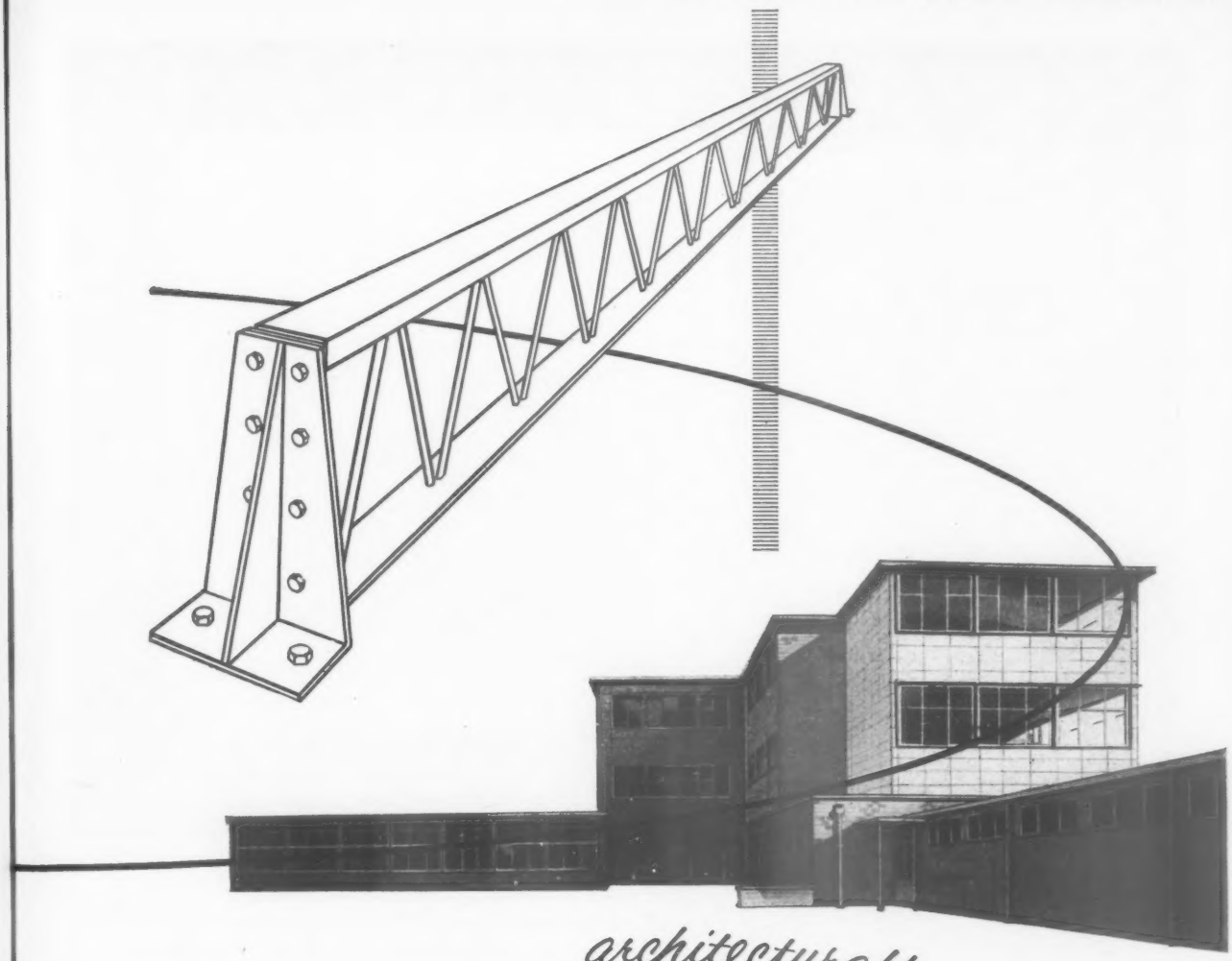
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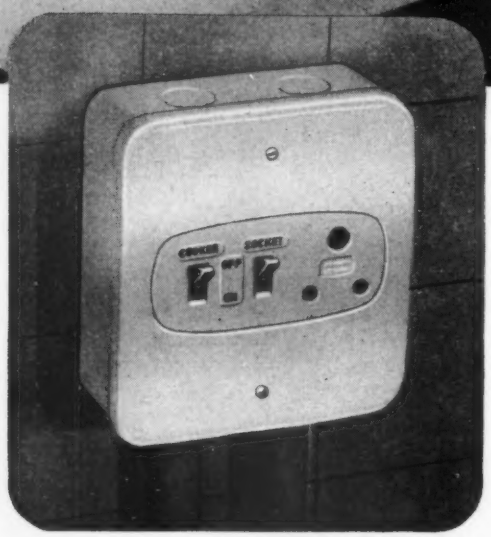
PB1

The comprehensive

Cambridge Range

of cooker control units





Top illustration shows a flush-mounted model with 13 amp. socket. Underneath is a surface-mounted model with 15 amp. socket.

The new Siemens Ediswan 'Cambridge' cooker control units are being produced in a really comprehensive range to satisfy all possible requirements. In two basic styles, for flush or surface wall mounting, they are available with socket controls for either 13 amp. or 15 amp. circuits (to BSS 1833 and 438). All models can be supplied with pilot lights. The housings are of zinc-coated steel, finished in cream stove enamel, and the front plate of the flush unit is specially adjustable to ensure correct mounting.

Although officially rated at 30 amp., all Cambridge units will carry up to 45 amp. continuously on the cooker circuit as well as supplying the socket outlet.

For full information send for leaflet PD 18/1952.

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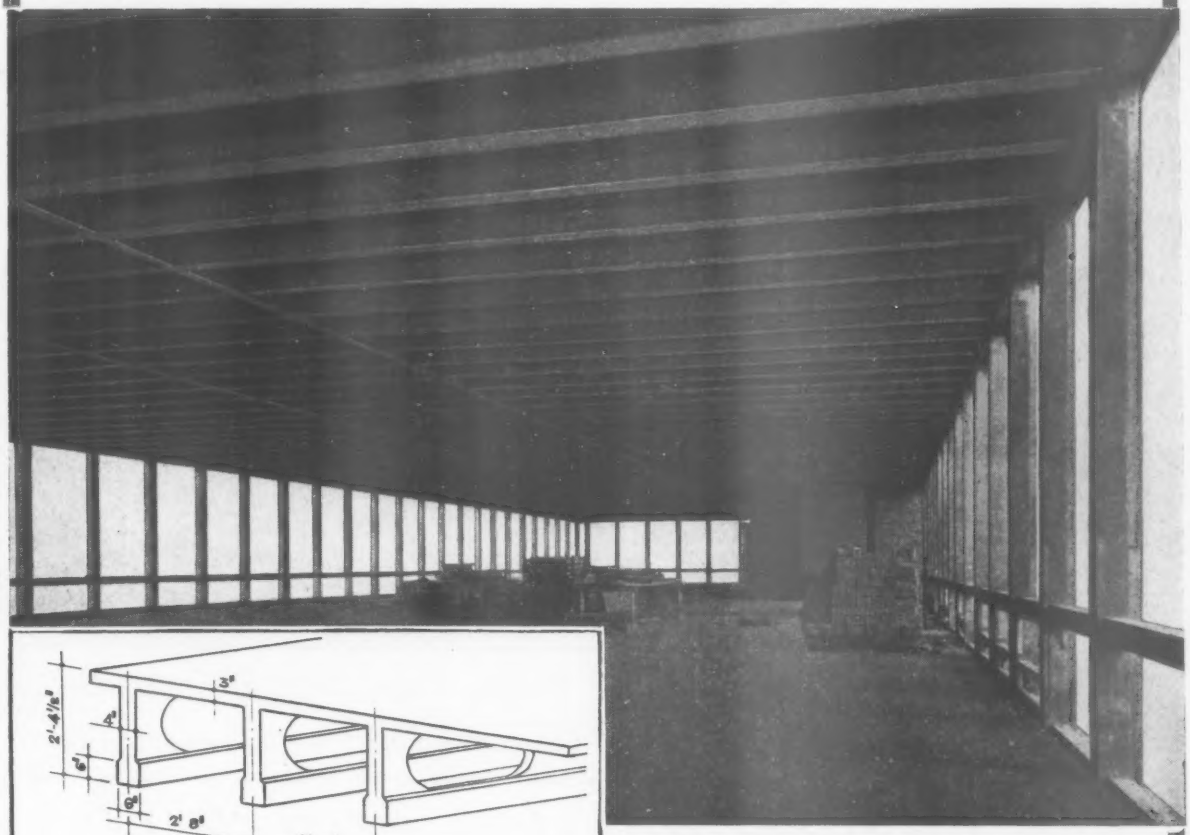
Surface or flush-mounting unit with 13 amp. socket control 28s 0d
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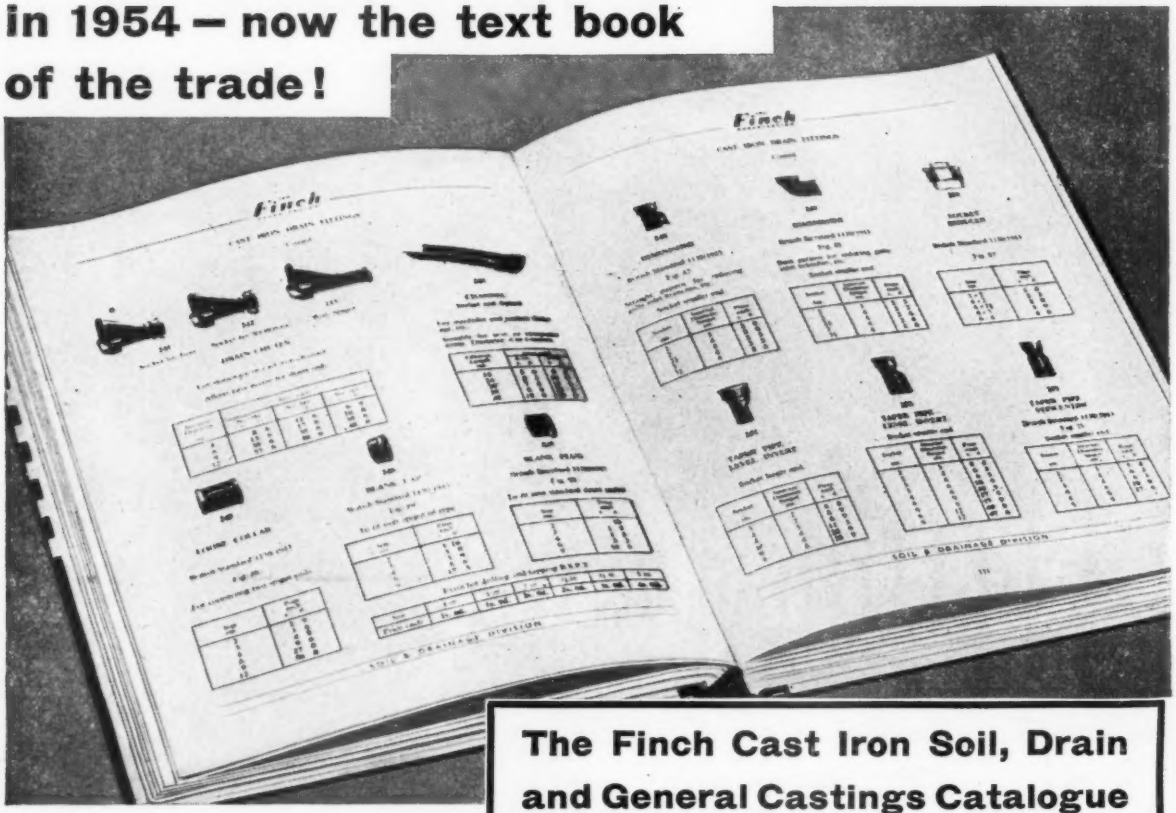
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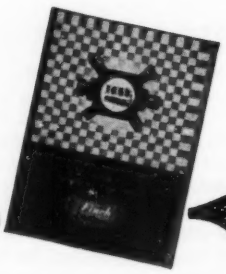
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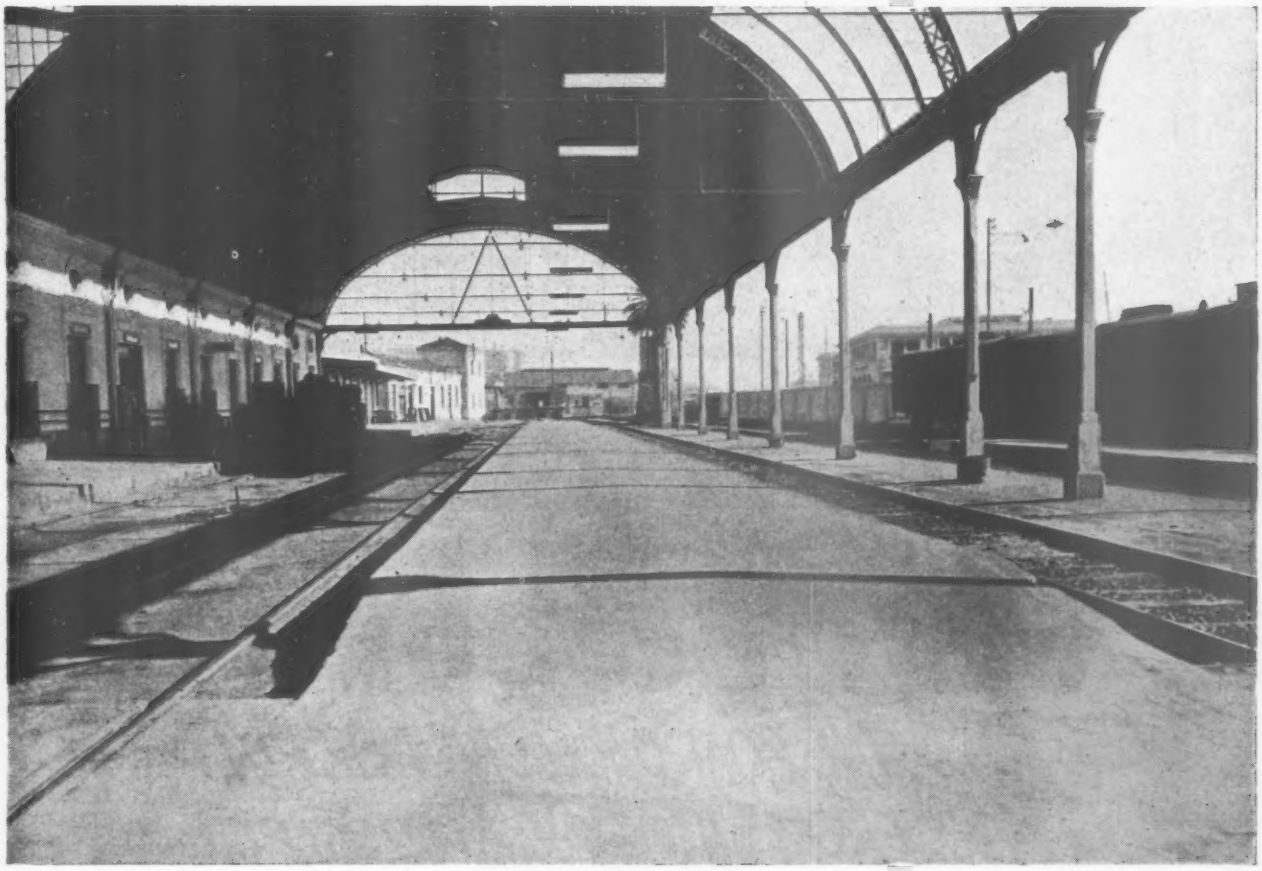
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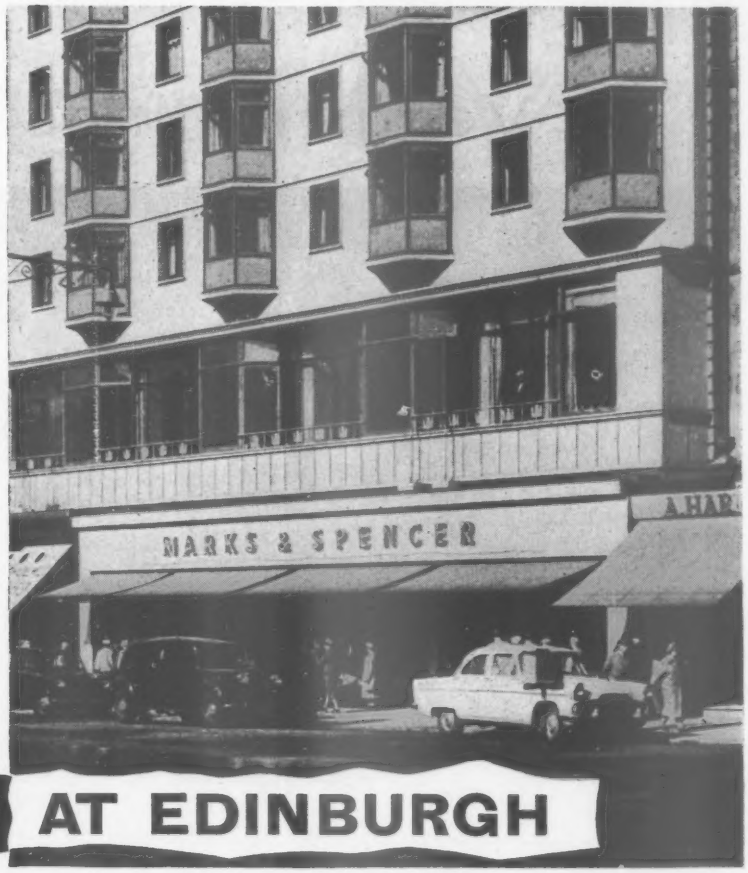
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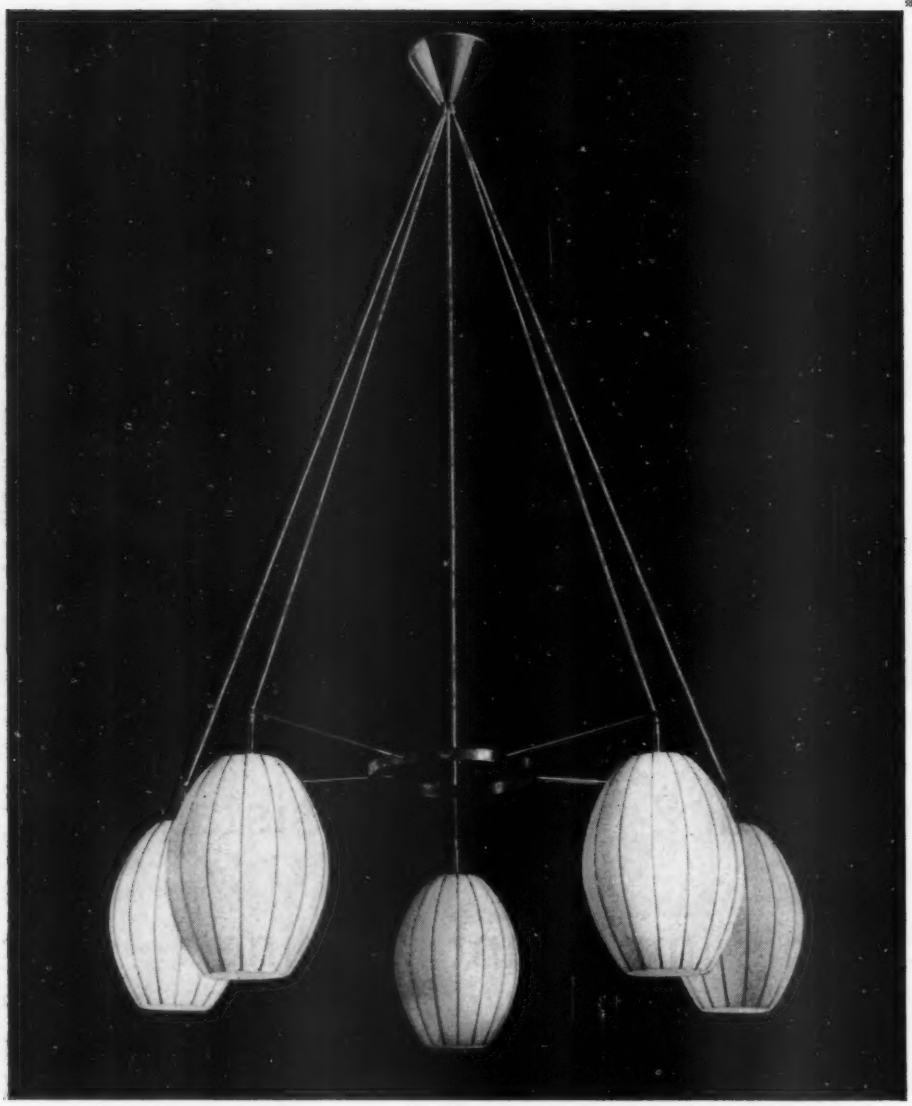
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AP 52

the most economical way to keep FIRE at bay

In 1957* alone, damage caused by fire in the U.K. exceeded the colossal sum of £25,000,000. In addition, immeasurable losses were sustained in the shape of decreased custom and goodwill, wasted labour, delays in fulfilling contracts and serious setbacks in planned development.

Can anything be done by architects and builders to prevent these recurring losses?

Right here in Britain, there are vast deposits of Gypsum—a mineral that cannot burn. Long recognised as being unique in its resistance to fire, Gypsum provides its own "sprinkler system"—it contains a 20% proportion of water of crystallisation. At temperatures above boiling point, this water vaporises. When no water remains, a process known as calcination occurs—beginning on the surface exposed to the fire and continuing gradually into the Gypsum. The crust of calcined Gypsum adheres tenaciously to the remaining material, effectively retarding further calcination. Thus, a most efficient barrier is raised against the passage of heat and the spread of fire.
Modern building materials are now manufactured from incombustible Gypsum. Use them to avoid unnecessary fire risks.

* *Latest published figures. 1958 shows the same pattern.*

...learn more about them overleaf

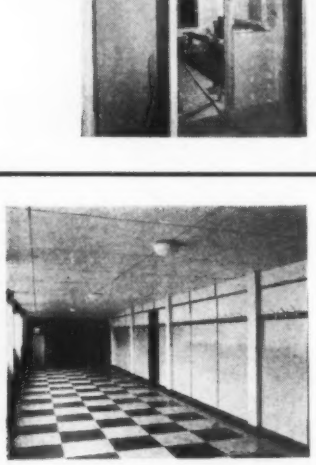
early co-operation will ensure good design



1. This photograph shows Paramount Plasterboard used for dry lining of external walls ready to receive the finished decoration. It also shows the use of Paramount Dry Partition consisting of 2 sheets of Paramount Plasterboard separated by a cellular core to which they are inseparably bonded. The use of Paramount Plasterboard for the ceiling will be noticed, and also of Paramount Cove, a section of which is lying, in the bottom left-hand corner.

Paramount Plasterboard

PLAIN · INSULATING · WATER RESISTING · PLASTIC FACED



3. 97 children lost their lives in a Chicago school fire recently. To help to prevent such an occurrence in this Bedminster Downe Secondary school, Paramount Dry Partition has been used.

Paramount Dry Partition

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5. Paramount ¾" Plasterboard for 2" solid partition 11' 3" high, erected at offices in Liverpool.

Paramount 2" Solid Partition

BLUE HAWK PRODUCT

BRITISH PLASTER BOARD F



7. Spreading Thistle Gypsum Plaster on the walls of a fire-safe home.

Thistle Gypsum Plasters

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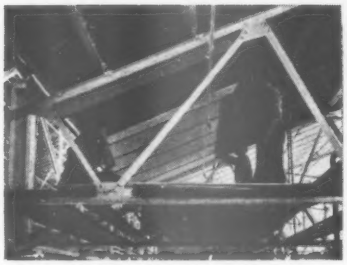


9. The columns and beams in this large departmental store were *NOT* protected with Paramount Plasterboard.

Blue Hawk RSJ Clip

FIRE-RESISTING MATERIALS

In both domestic and industrial buildings, the prevention of spread of fire is of vital importance. Adequate protection can save lives, provide firemen with extra time to fight the outbreak and can often make the difference between superficial damage and total loss.
Because it has a core of Gypsum, the mineral that cannot burn, Paramount Plasterboard is the **SAFE** sheet lining for roofs, walls and ceilings. It is graded as a Class I material—that is, one that constitutes no fire hazard. Unlike most other building boards, it requires no costly fire-retarding surface treatment or special impregnation of any kind.
The various grades of Paramount Plasterboard provide the most economical form of fire-safe construction—all costing less than 6d. per sq. ft. As an additional bonus, they also offer the considerable advantages of thermal and sound insulation for the same initial outlay.



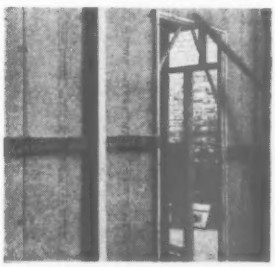
2. Paramount Insulating Plasterboard employed as a fire-safe roof lining in a new factory. They make matches in this one.

Considered to be one of the most valuable contributions to modern building practice, Paramount Dry Partition is also a highly effective barrier to flame spread, particularly when used to sub-divide large spaces in factories, workshops, offices, etc.
Consisting of two Paramount Plasterboards enclosing a tough, fibrous core, Paramount Dry Partition is a strong, rigid, ready-made wall—ideal for dividing interiors and cladding external walls. It is easy to cut, handle and erect and is most adaptable. Being a "dry" product, its use eliminates the delay normally caused by wet work.



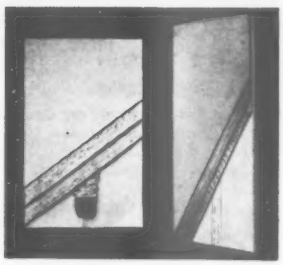
4. Paramount Dry Partition acts as an effective fire barrier in Lloyds of London—the Insurance Centre of the World.

Another fire-resisting type of construction is formed from ¾" Paramount Plasterboard coated on site with ⅝" thick Gypsum plaster on both sides. The finished partition is extremely strong, light, rigid and free from cracking and crazing. It is particularly useful for light partitions, shelving in laboratories or stores for inflammable goods, shop fitting and the construction of storage cupboards, etc. No comparable partition achieves such economy of space. It has a 1-hour fire resistance.



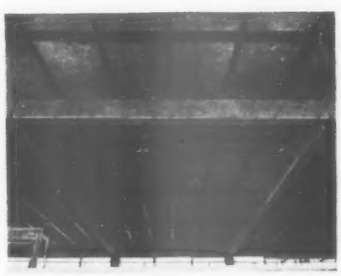
6. Paramount ¾" Plasterboard for 2" solid partition, being erected as a fire stop in a large undivided factory.

All the plasters in this range are manufactured from Gypsum—the mineral that cannot burn. Consequently, their use is indicated wherever fire-safe construction is essential. All conform to B.S.1191, are graded as Class B and are known as Retarded Hemi-hydrate Gypsum Plasters. They offer the maximum uniformity in setting time and workability and are non-shrinking and time-saving. The range meets all requirements.



8. 2 or 3 coats of Thistle Gypsum Plaster on Paramount or Thistle Gypsum Plasterboard give a high fire resistance—up to 2 hours and more.

As a result of past experience when factory roofs have collapsed with disastrous effects, it is now becoming standard practice to protect all structural steelwork against fire. This can be done most economically by cladding steel columns and beams with Paramount Plasterboard, fixed in position by means of a simple, ingenious device called the Blue Hawk RSJ Clip. Made from hardened and tempered spring steel and cadmium-plated to resist rust, the RSJ Clip replaces older methods of timber bracketing—thus saving time (as much as 90%!), labour and materials.



10. Steel columns and beams protected with Paramount Plasterboard and fixed with Blue Hawk R.S.J. Clips in a garage at Coventry. Erected *AFTER* the Jaguar fire.

AP160



7. Spreading Thistle Gypsum Plaster on the walls of a fire-safe home.

Thistle Gypsum Plasters

BOARD FINISH PLASTER · BROWNING & WALL FINISH PLASTERS
CONCRETE BONDING PLASTERS · METAL LATHING PLASTER
ACOUSTIC PLASTER



9. The columns and beams in this large departmental store were *NOT* protected with Paramount Plasterboard.

Blue Hawk RSJ Clip

BLUE HAWK PRODUCTS

the range of

BRITISH PLASTER BOARD

gypsum/fire-resisting products includes

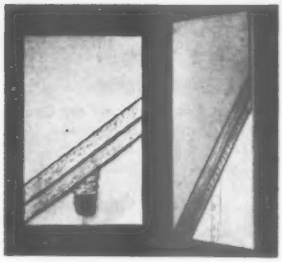


Thistle

- ☐ Plaster Baseboard
- ☐ Plaster Lath
- ☐ Board Finish Plaster
- ☐ Browning and Wall Finish Plasters
- ☐ Metal Lathing Plaster
- ☐ Acoustic Plaster
- ☐ Concrete Bonding Plaster
- ☐ Insulating Plaster Baseboard
- ☐ Insulating Plaster Lath

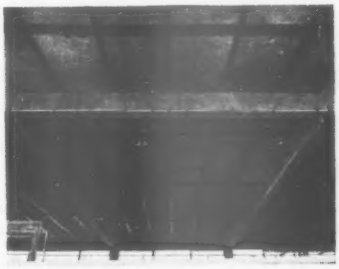
- ☐ Plasterboard
- ☐ Insulating Plasterboard
- ☐ ¾" Plasterboard for Two-inch Solid Partition

All the plasters in this range are manufactured from Gypsum—the mineral that cannot burn. Consequently, their use is indicated wherever fire-safe construction is essential. All conform to B.S.1191, are graded as Class B and are known as Retarded Hemi-hydrate Gypsum Plasters. They offer the maximum uniformity in setting time and workability and are non-shrinking and time-saving. The range meets all requirements.



8. 2 or 3 coats of Thistle Gypsum Plaster on Paramount or Thistle Gypsum Plasterboard give a high fire resistance—up to 2 hours and more.

As a result of past experience when factory roofs have collapsed with disastrous effects, it is now becoming standard practice to protect all structural steelwork against fire. This can be done most economically by cladding steel columns and beams with Paramount Plasterboard, fixed in position by means of a simple, ingenious device called the Blue Hawk RSJ Clip. Made from hardened and tempered spring steel and cadmium-plated to resist rust, the RSJ Clip replaces older methods of timber bracketing—thus saving time (as much as 90%!), labour and materials.



10. Steel columns and beams protected with Paramount Plasterboard and fixed with Blue Hawk R.S.J. Clips in a garage at Coventry. Erected *AFTER* the Jaguar fire.

AP 160



BLUE HAWK PRODUCTS

the range of

BRITISH PLASTER BOARD

gypsum/fire-resisting products includes



Thistle

- ☐ Plaster Baseboard
- ☐ Plaster Lath
- ☐ Board Finish Plaster
- ☐ Browning and Wall Finish Plasters
- ☐ Metal Lathing Plaster
- ☐ Acoustic Plaster
- ☐ Concrete Bonding Plaster
- ☐ Insulating Plaster Baseboard
- ☐ Insulating Plaster Lath

Paramount

- ☐ Plasterboard
- ☐ Insulating Plasterboard
- ☐ ¾″ Plasterboard for Two-inch Solid Partition
- ☐ Dry Partition
- ☐ Cove
- ☐ Water Resisting Plasterboard
- ☐ Plastic Faced Plasterboard

Paraclip

- ☐ System of Suspended Ceilings and Wall Linings

Blue Hawk

- ☐ Flooring
- ☐ RSJ Clip

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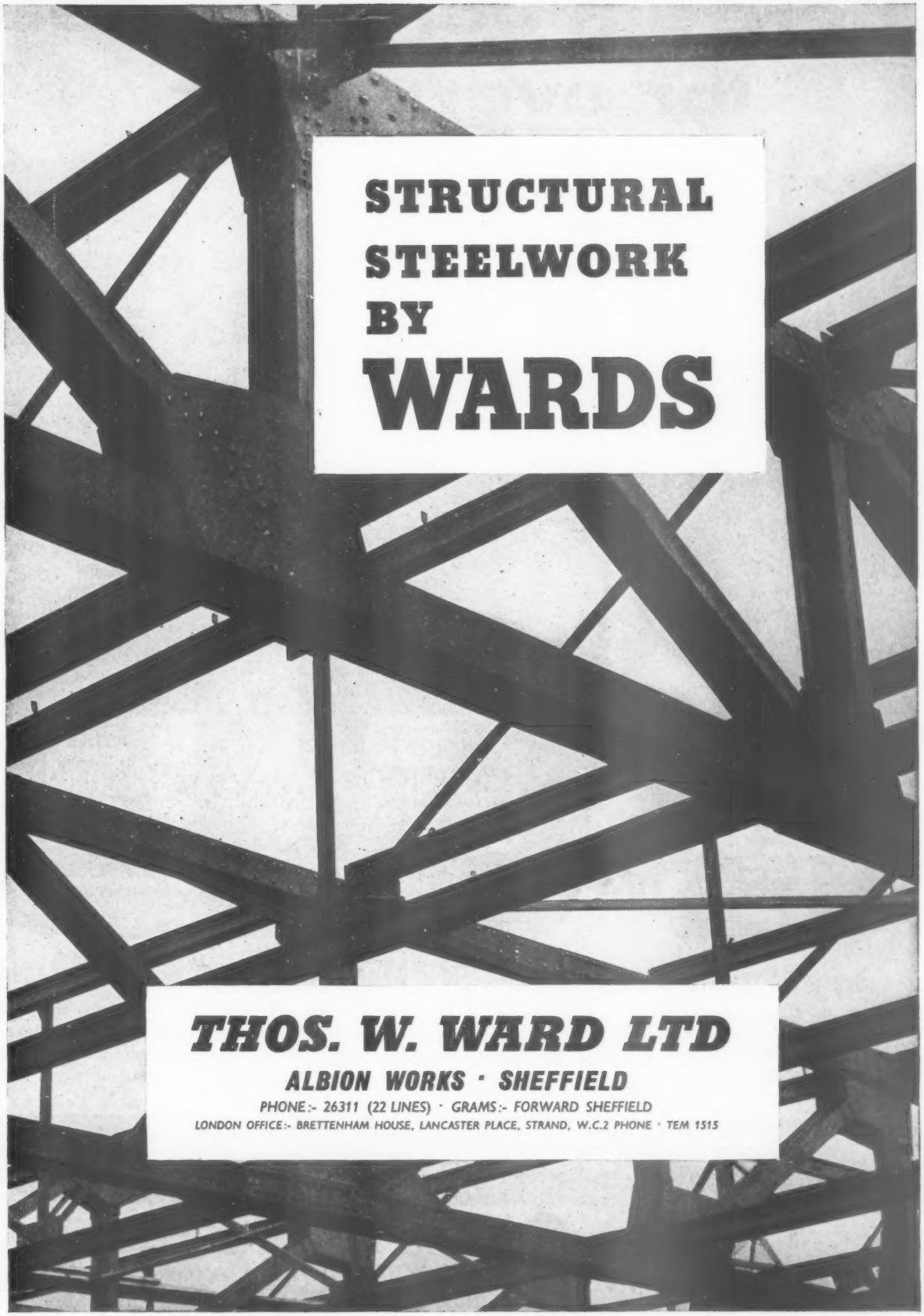
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AP 158


STRUCTURAL
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LONDON OFFICE:- BRETTENHAM HOUSE, LANCASTER PLACE, STRAND, W.C.2 PHONE · TEM 1515

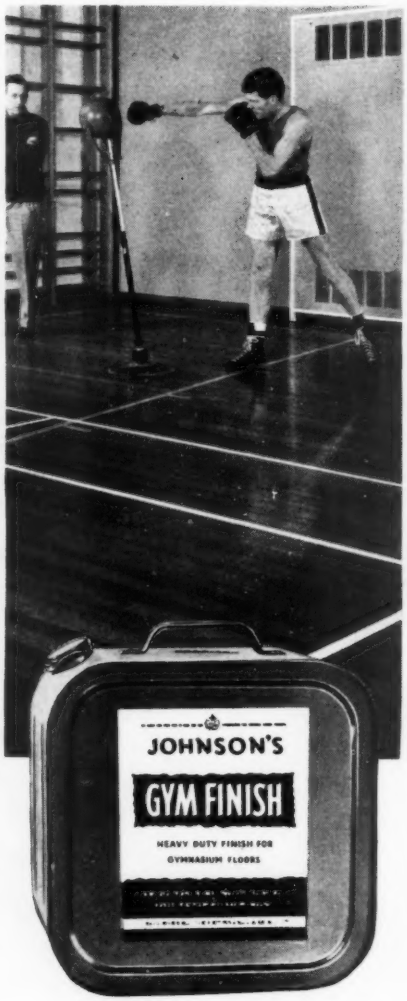
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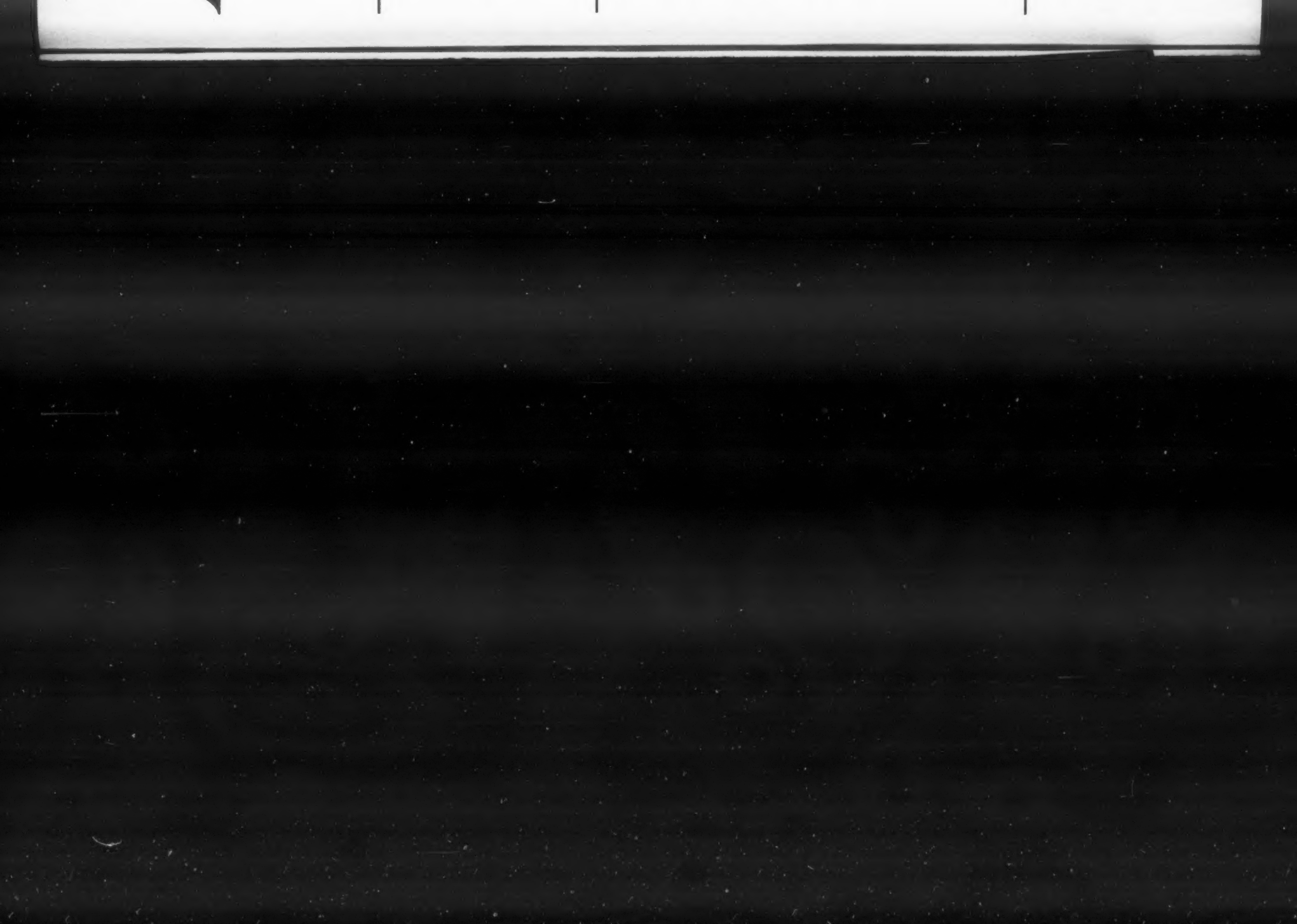
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AX 19

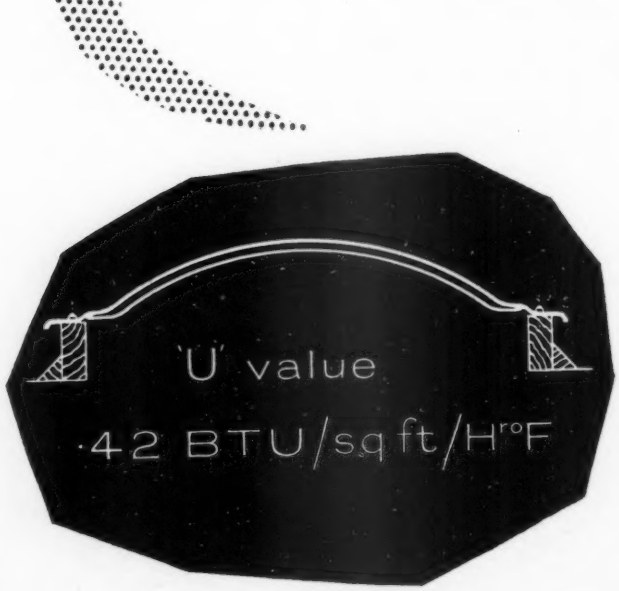
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BY ALLIED IRONFOUNDERS

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Recessed panels* **Chrome safety handgrip***

7 colours to choose from—white, ivory, pink, blue, green, primrose, or turquoise. The finish is easy-to-clean Duramel.

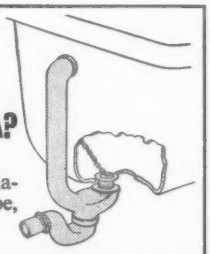
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The Vogue, for all its wonderful luxury, costs no more than the Magna bath.

** Available at extra cost.*

DO YOU KNOW ABOUT THE COBRA?



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- takes only 15 minutes to fit—a big time-saving
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- trap connects with outlet—whatever the position
- fits the Allied Vogue, Magna and most other baths

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Makers of cookers, boilers, fires and baths

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"Wallstruct" was used on this building erected for the Queensway Store Co. Ltd., at Crawley New Town, Sussex.
Consultant Designer: Gaby Schreiber, F.S.I.A.
Chief Architect: R. G. Thomson, Dip.Arch., A.R.I.B.A.
Architect-in-Charge: D. D. Glennie, B.Arch., A.R.I.B.A.
Contractors: Welwyn Builders Ltd.

BRABY

"WALLSTRUCT"

a Curtain Walling in Aluminium Alloy

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* **Supplied in natural (mill) finish, or polished, anodised and sealed.**

BRABY "Wallstruct" has been designed to exploit fully the high strength/weight ratio, the excellent weathering and the pleasing appearance of aluminium alloy.

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AP127



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...from Canada's vast forests a wood for almost every need!



CANADIAN WESTERN HEMLOCK

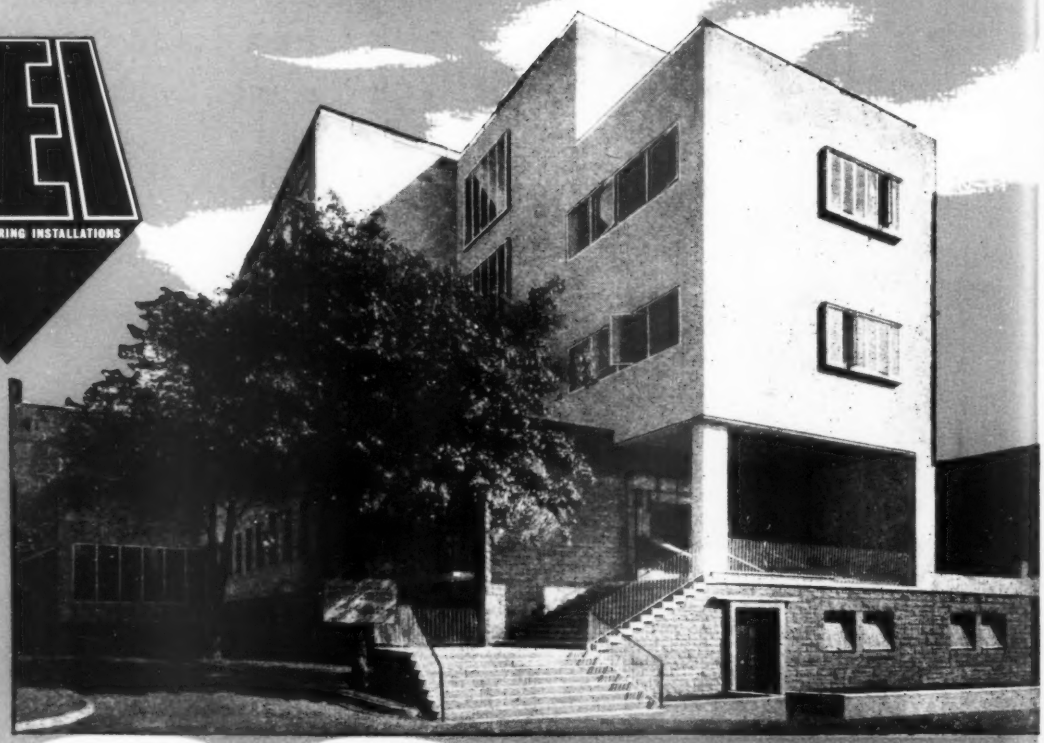
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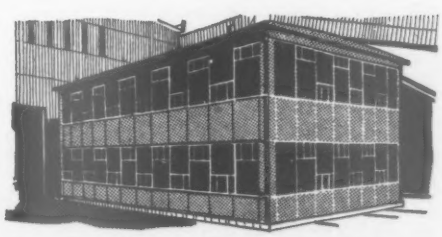
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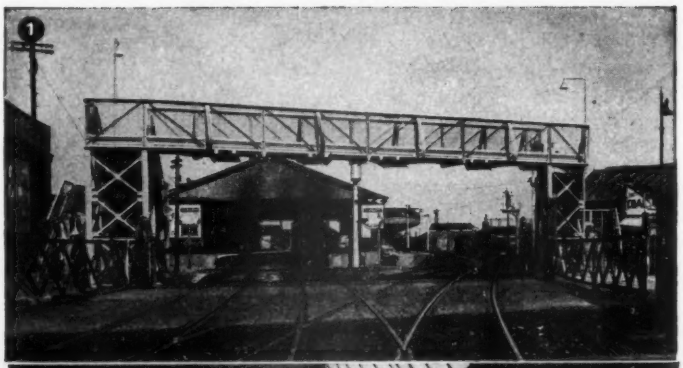
STANDARD MACLEAN LIMITED CADZOW WORKS, LOW WATERS ROAD, HAMILTON, Lanarkshire. Hamilton 1410/4.

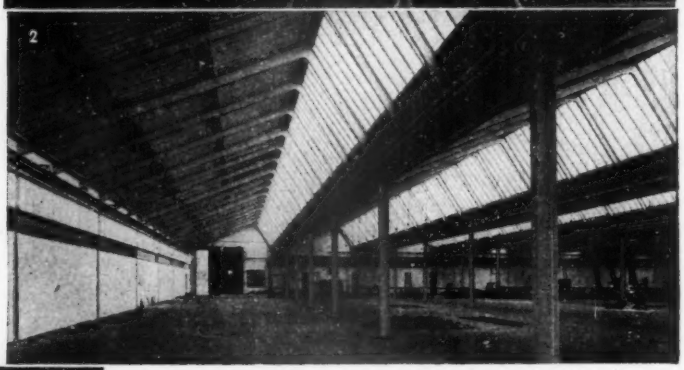
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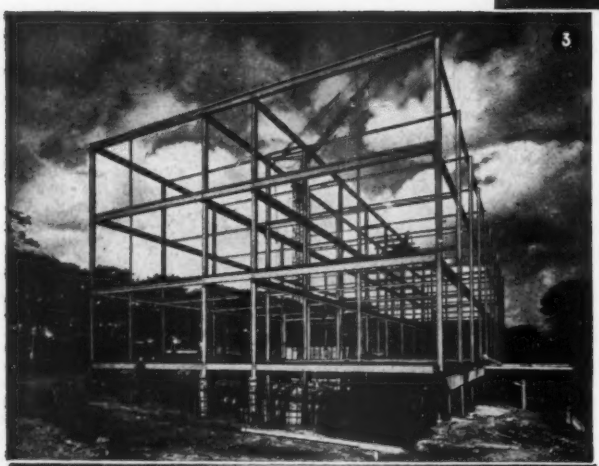
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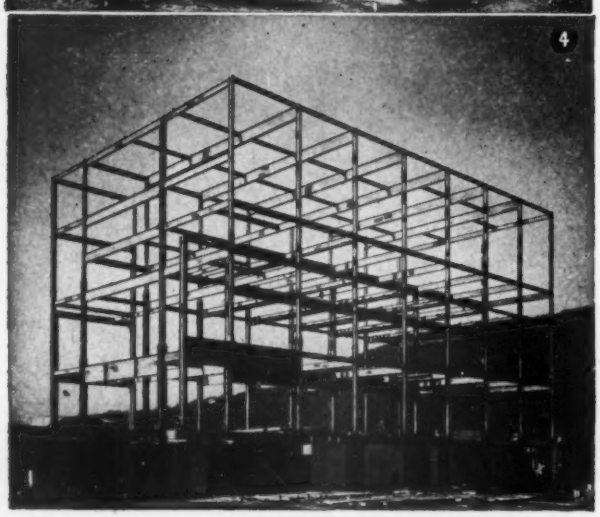
1. Footbridge for Level Crossing in Grimsby.
2. Interior view of factory for Messrs. Brook Motors Ltd., Barnsley.
3. Sowerby Bridge Secondary School.
4. Control Room, Services and Welfare Block, Elland Power Station.

STRUCTURAL STEELWORK









BY AUSTINS

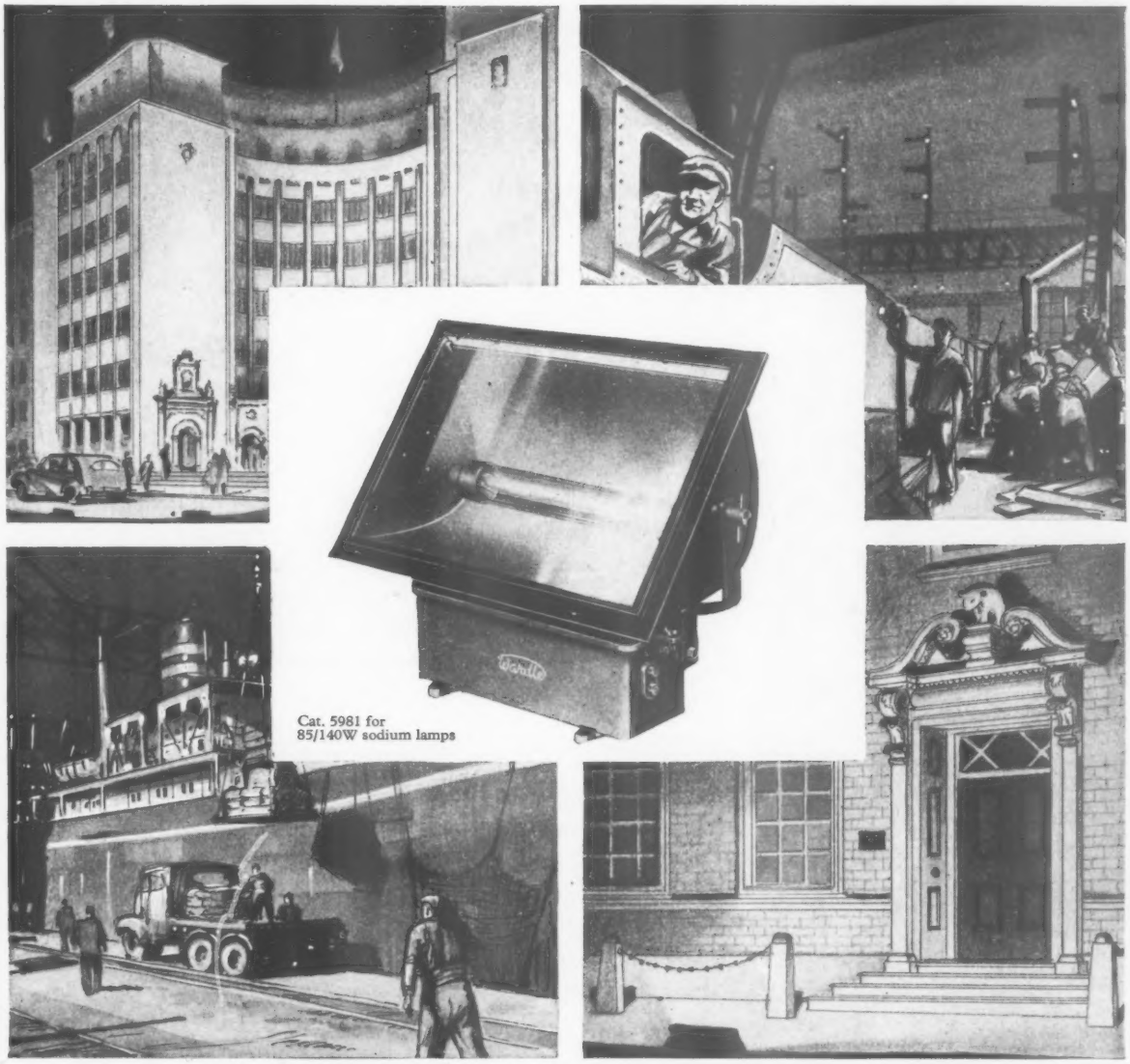
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WARDLE

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SECO units with traditional materials

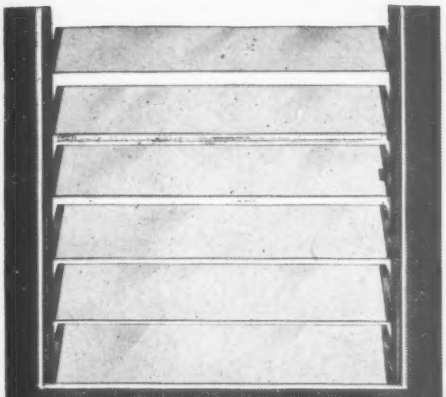
All SECO units can be used with traditional building materials. For instance, AERODEK roofing units can be used to span across normal brickwork construction or SECO wall panels as a cladding to traditional steel framed structure. And remember, whether you wish to create new components or use existing SECO materials our service of final detail design saves you a great deal of trouble.

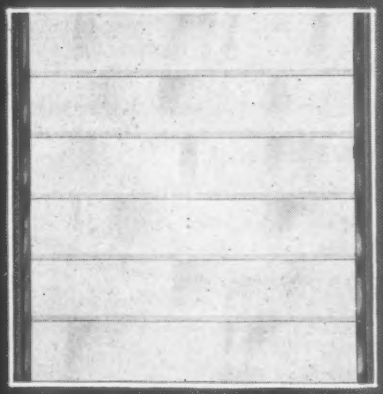
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HIGHLIGHT cost-cutting NACO SUNSASH LOUVRE WINDOWS

FOR COMPLETE, CONTROLLED VENTILATION

Full efficiency and low-cost economy; these factors are assured when Naco Sunsash Louvre Windows are specified. Distributed for many varying applications in 89 countries, they have been acclaimed for weather-proof ventilation under all conditions.

IN THE U.K. costs compare more than favourably with any other kind of window. A simple unit, including glazing, costs six shillings per square foot.

The Ministry of Education (Architects and Building Branch) have recently specified Naco Sunsash for many new developments. Other users include: U.K. Atomic Energy Authority; Ministry of Agriculture; Air Ministry; Ministry of Supply; Ministry of Works; London County Council; Bucks County Council; Herts County Council; The English Electric Co. Ltd., Nestlé Co. Ltd., and Roneo Ltd.

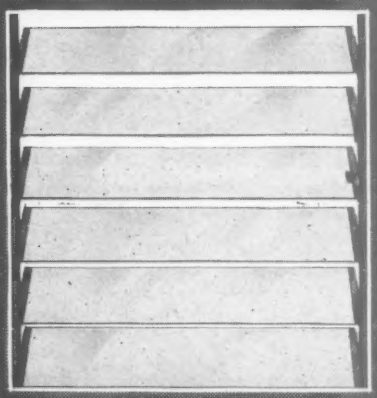
INSTALLATION is simple and when completed permits controlled, draught-free air flow because louvre blades are adjustable through ninety degrees. Any number of louvres can be combined in window apertures with sectional control operating levers as required. In addition to horizontal positioning, interior louvres can be fitted vertically to enhance design features.

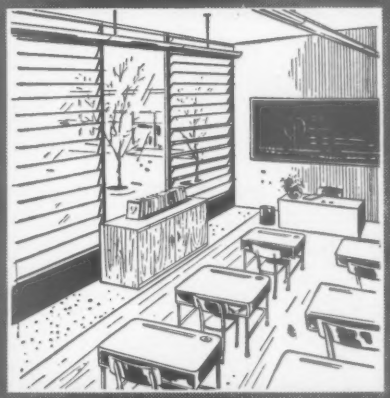
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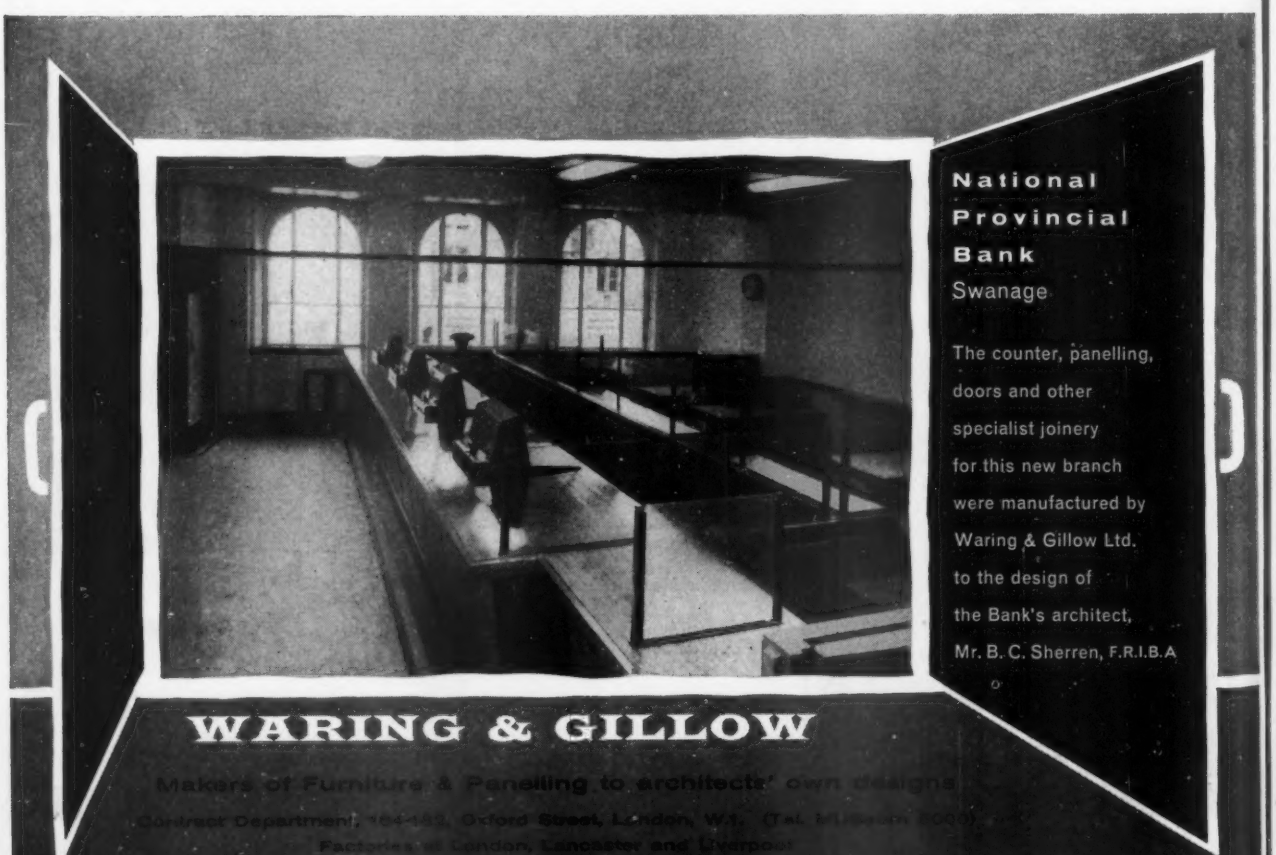
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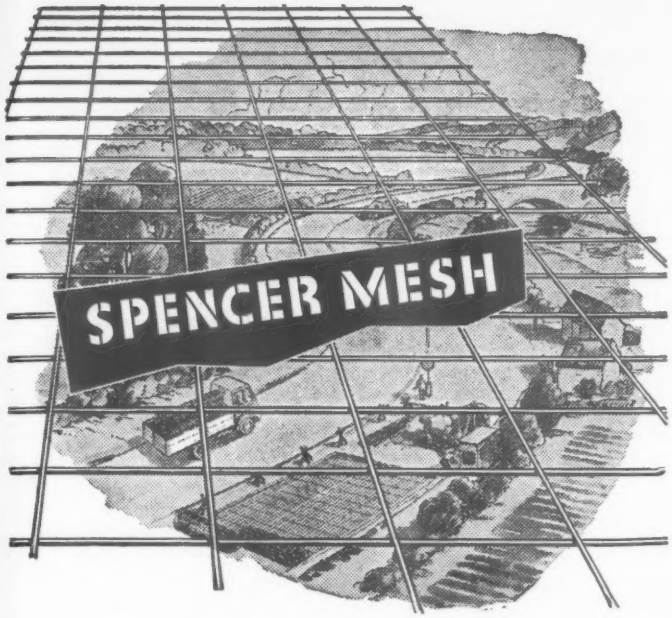
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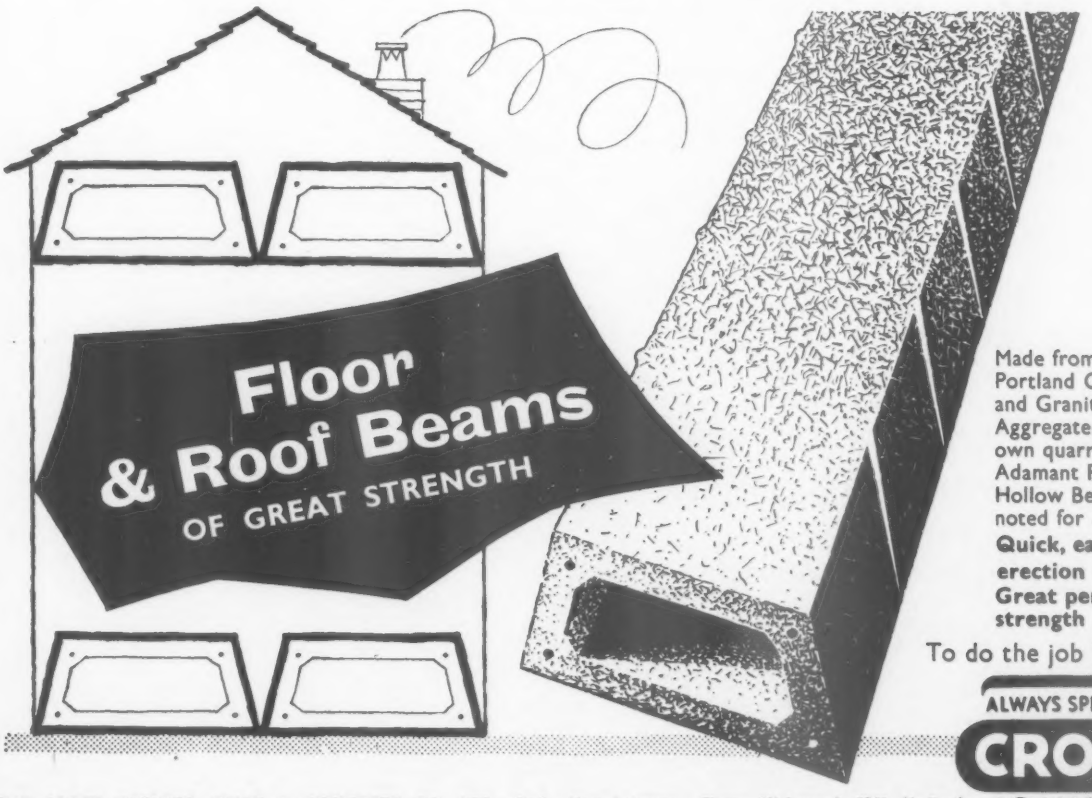
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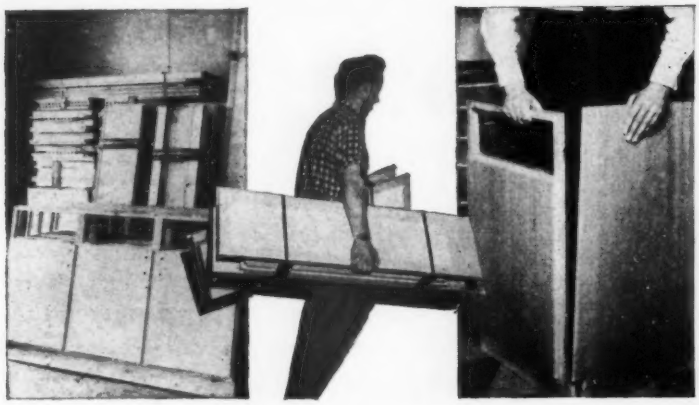
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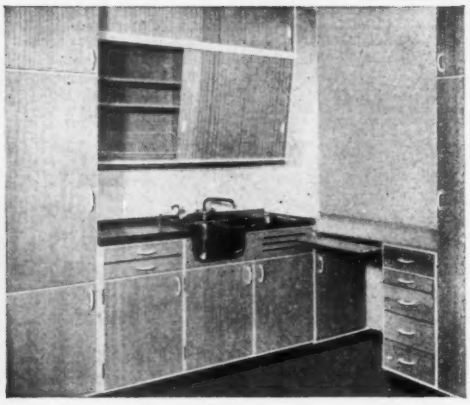
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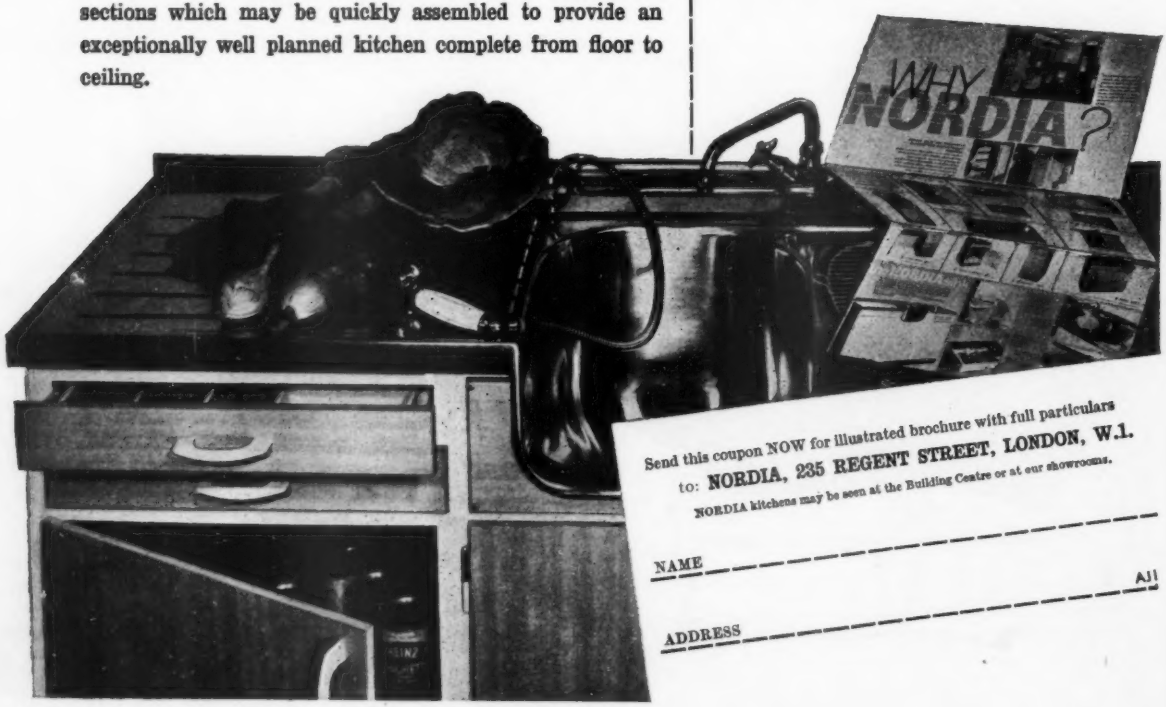
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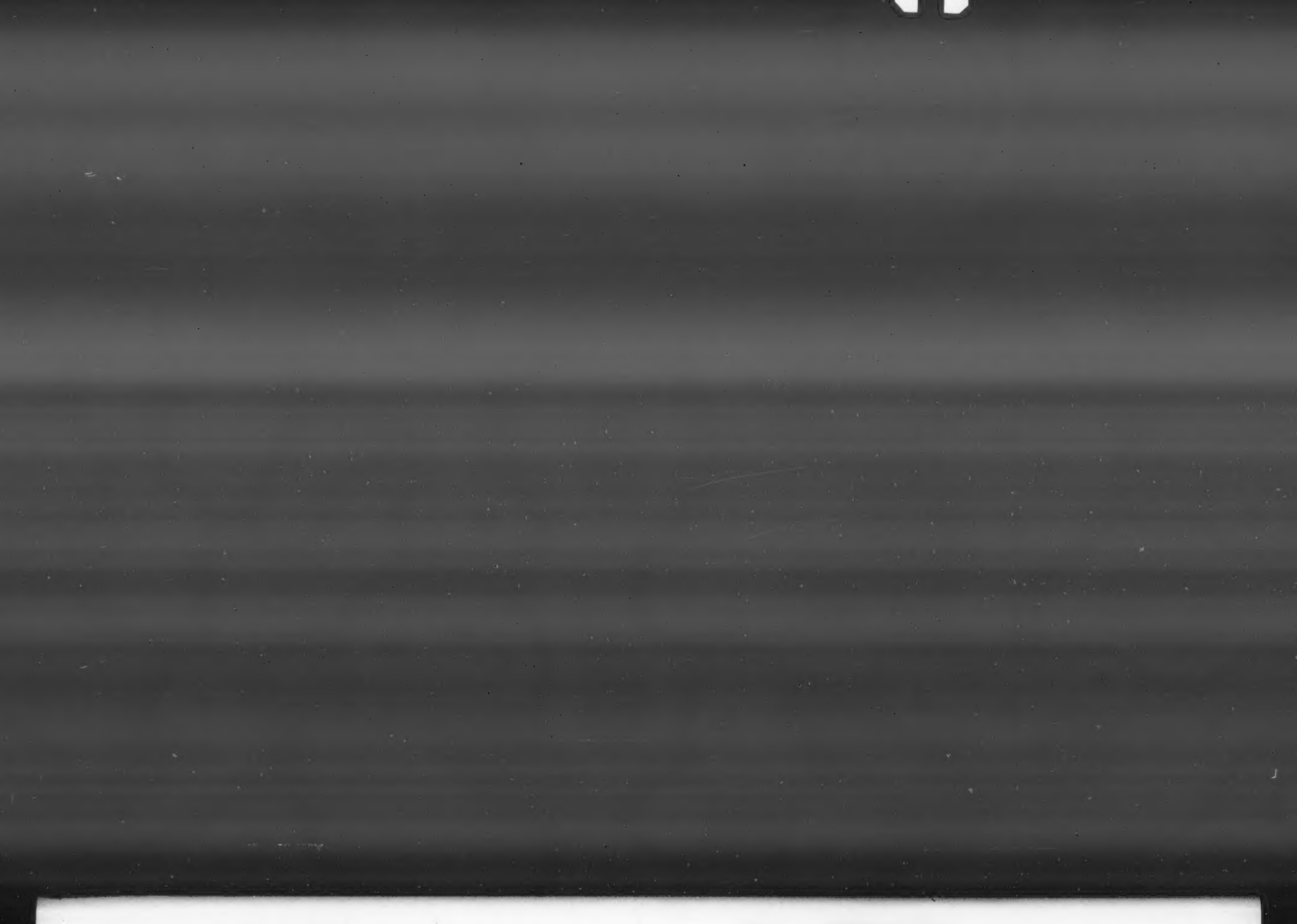
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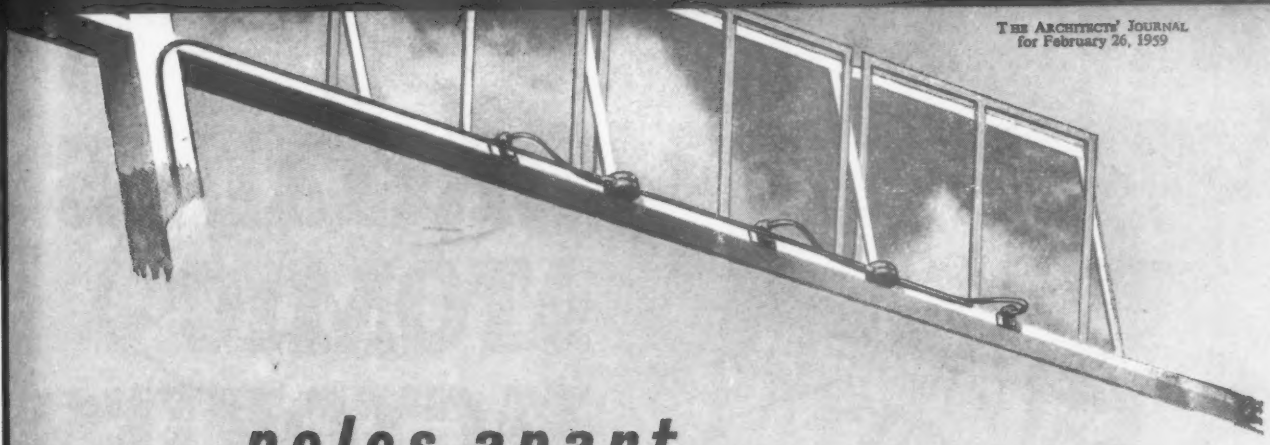
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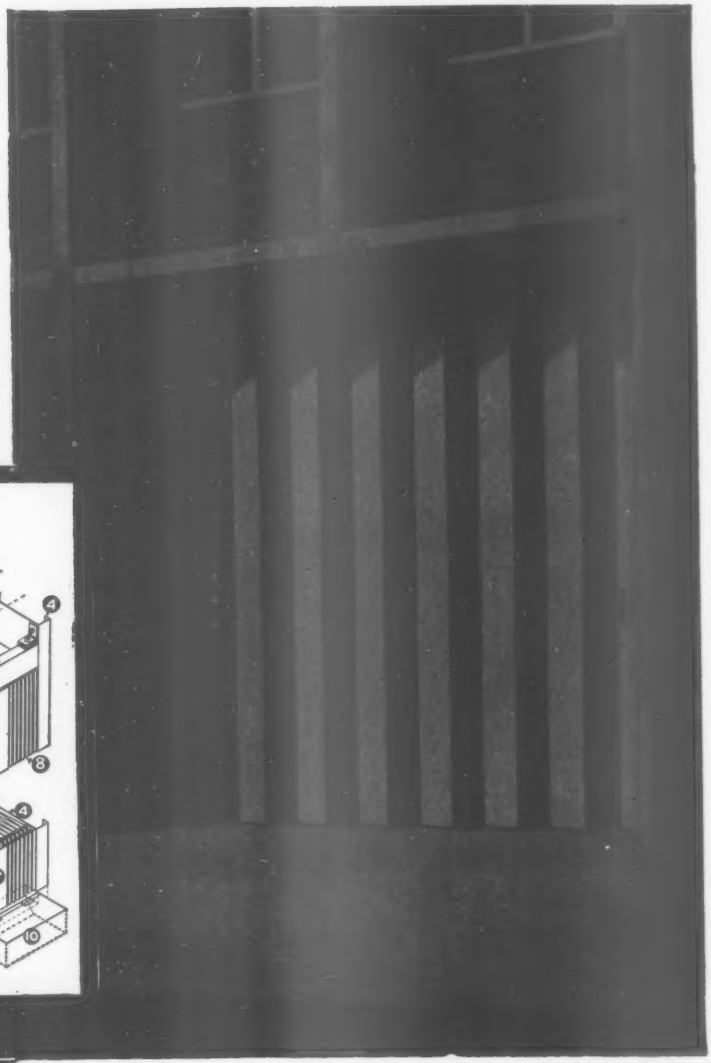
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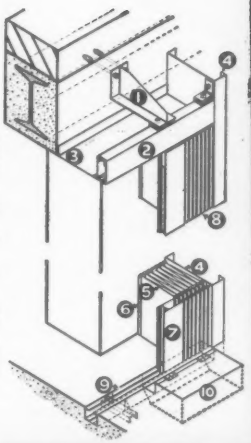
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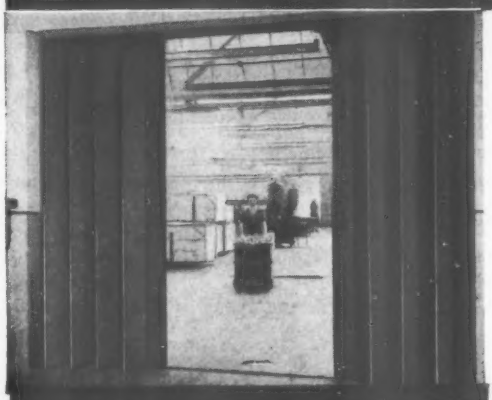
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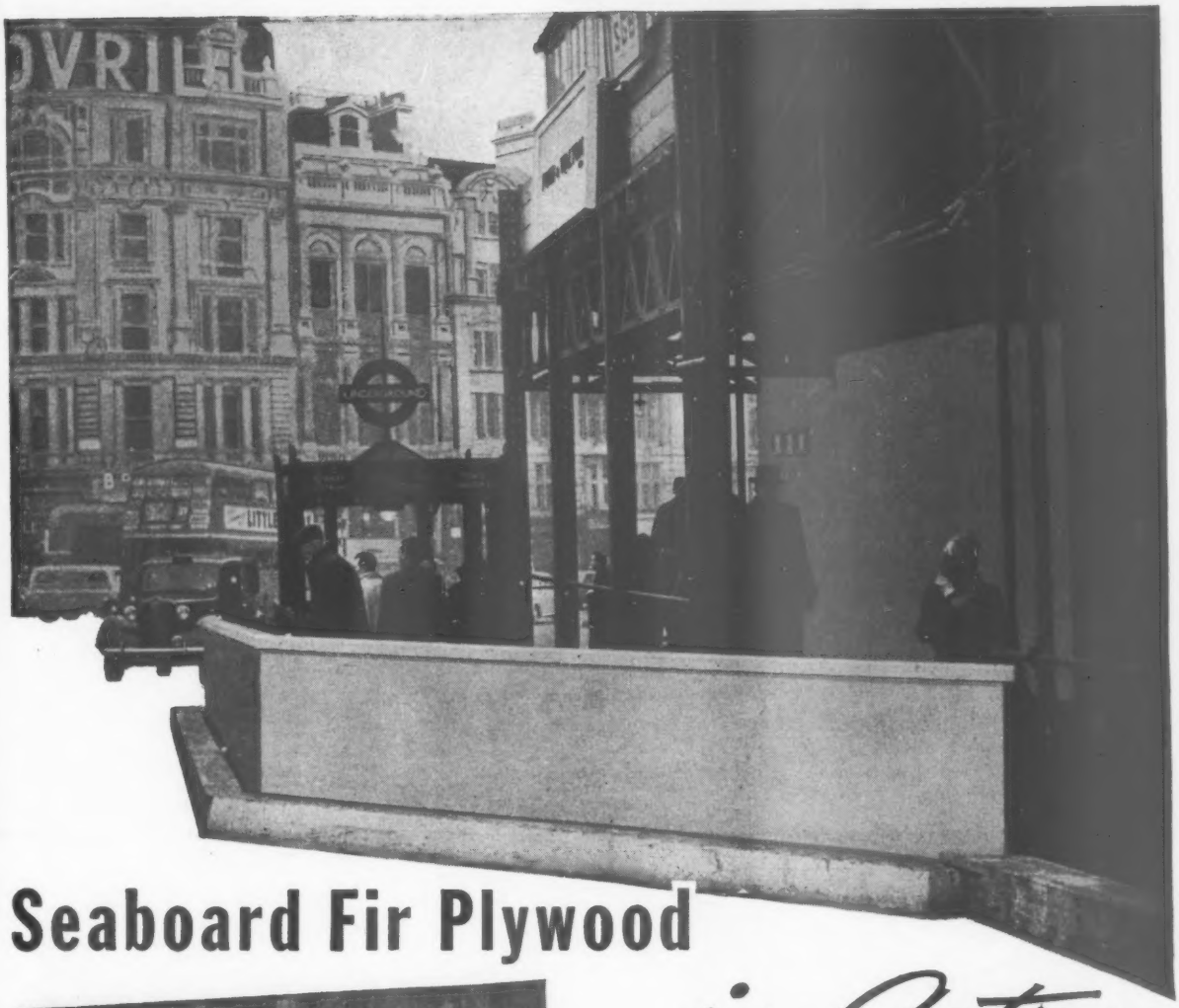
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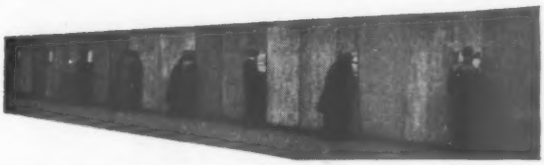
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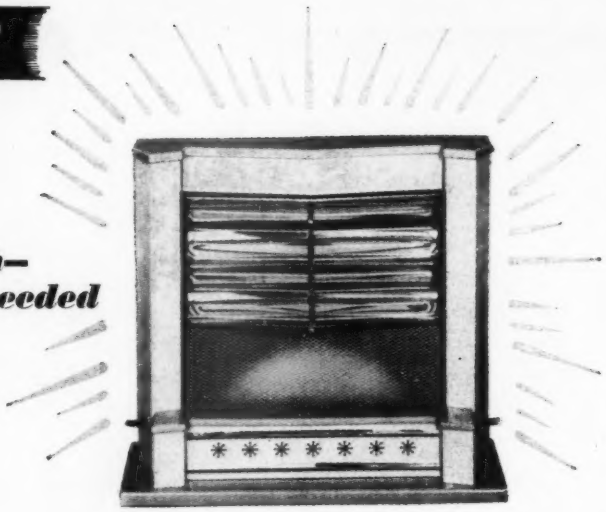
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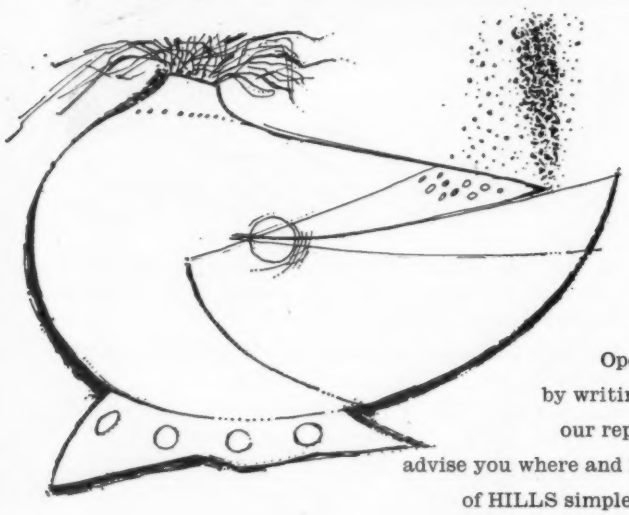
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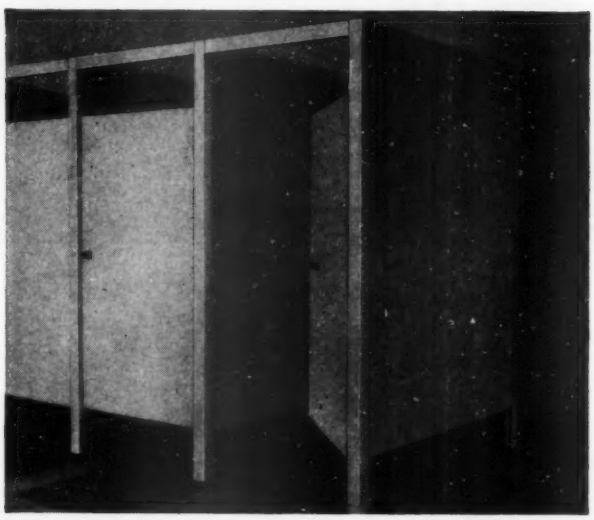


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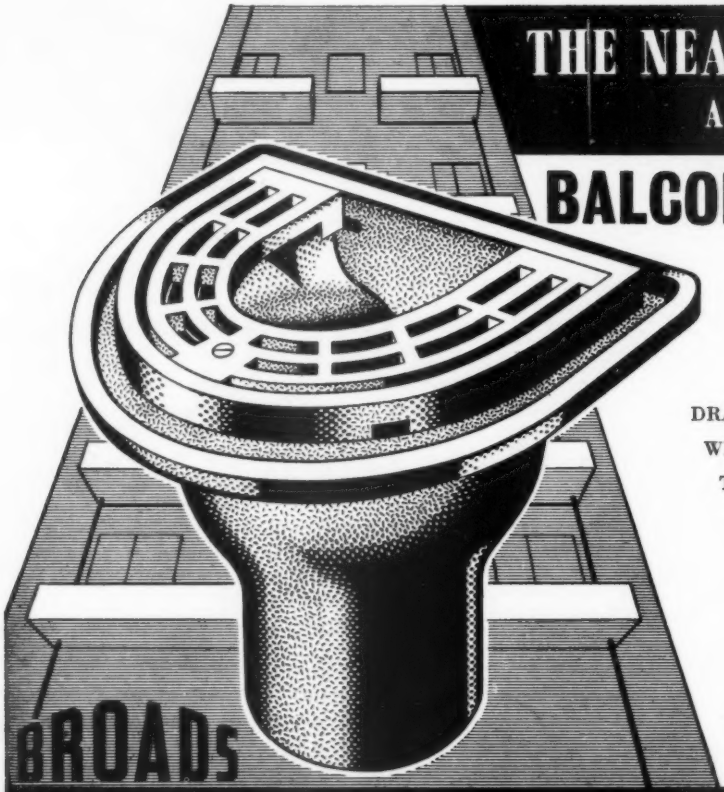
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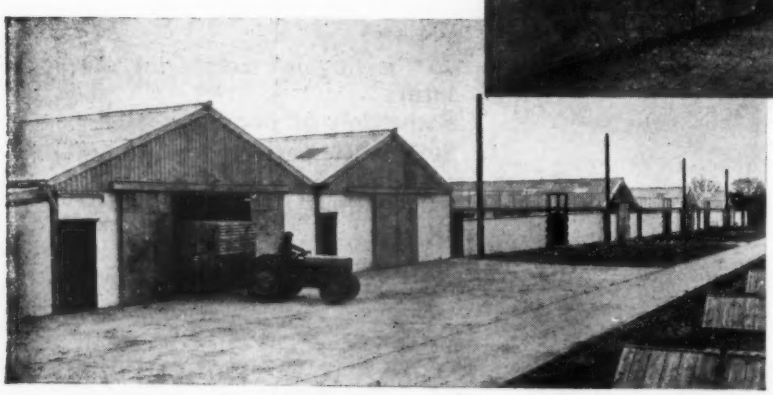
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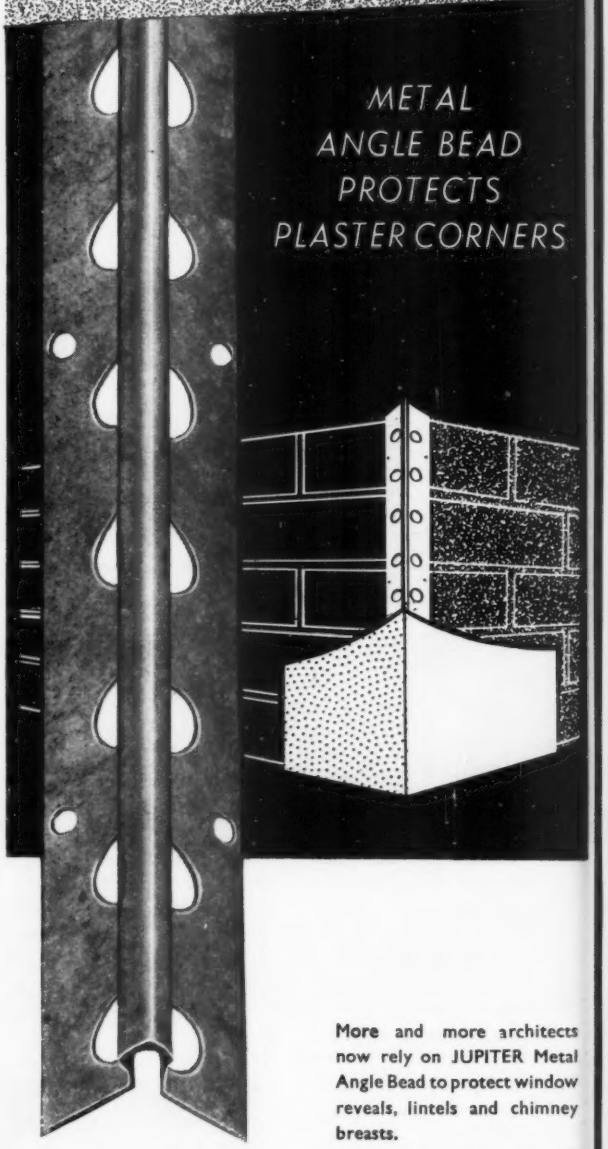
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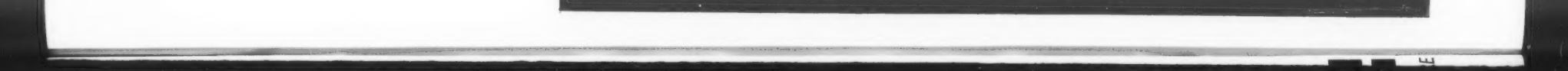
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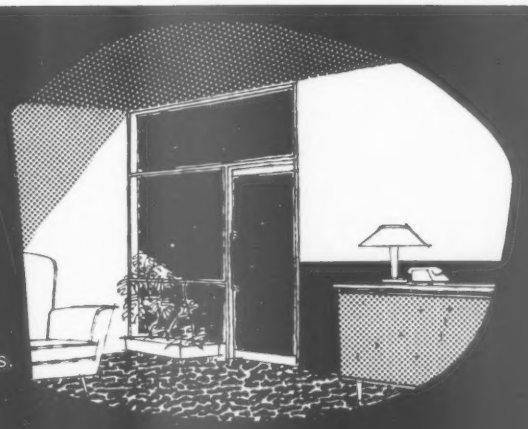


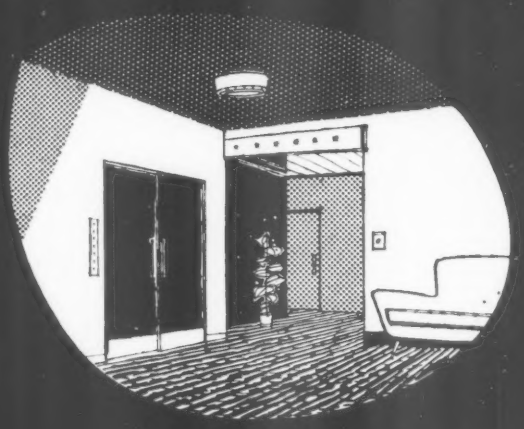


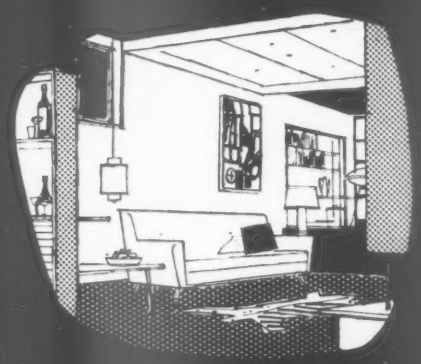


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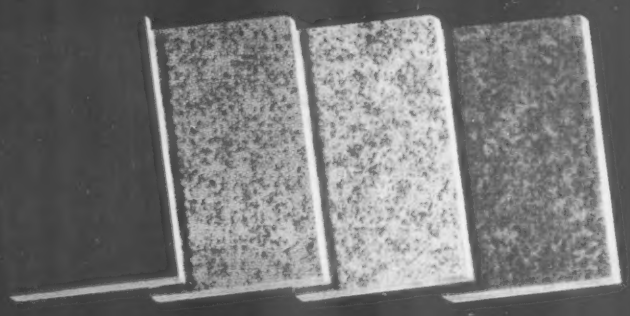
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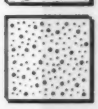
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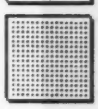
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Armstrong Straight Row Cushiontone. Sizes 12″×12″ and 24″×24″, ½″ and ¾″ thicknesses.



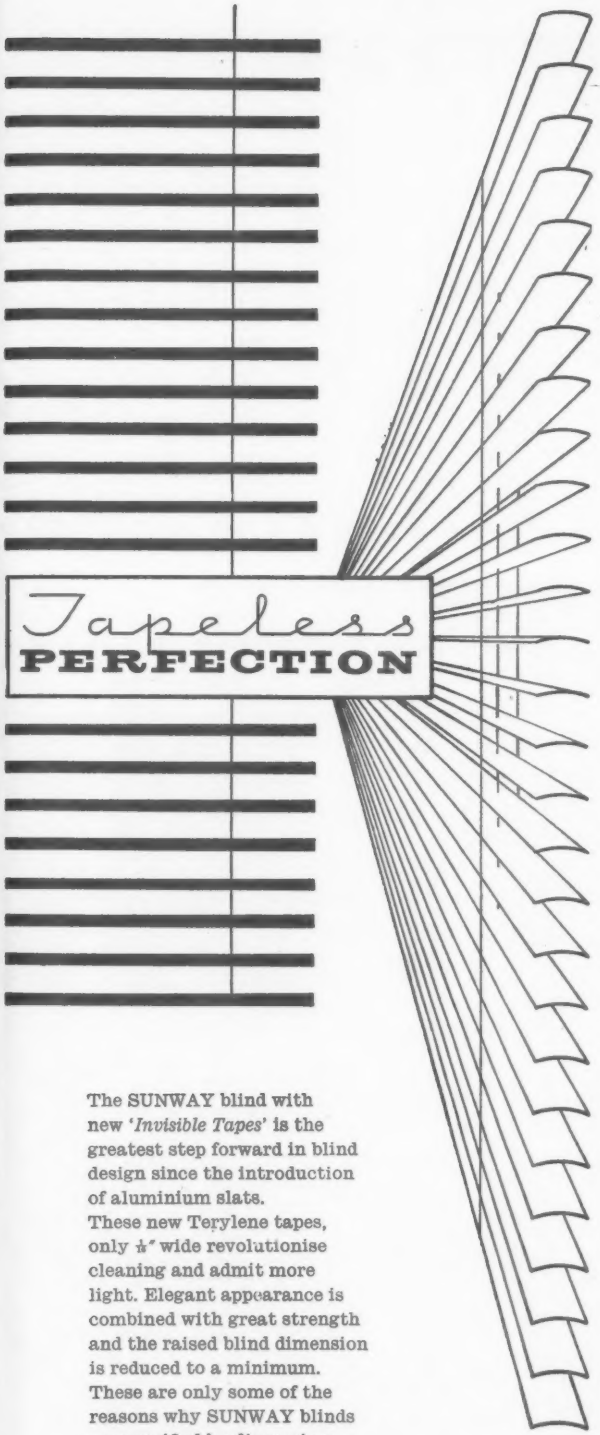
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AJ

The Architects' Journal

No 3339. Vol 129. February 26, 1959

9-13 Queen Anne's Gate, London, S.W.1. Whitehall 0611
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NOT QUITE ARCHITECTURE

BETJEMAN AND SUBTOPIA

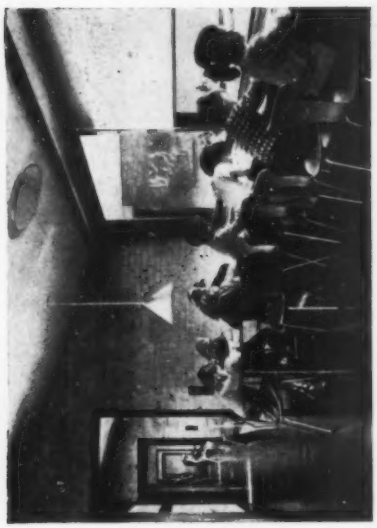
If a poet succeeds in gaining wide popularity, he can hardly avoid being misunderstood; I suppose many people think of John Betjeman as that funny chap on the telly who fiddles about with his glasses and actually says he likes the Albert Memorial. Although there's no need to emphasize to JOURNAL readers that there's a good deal more to him than that, it does seem rather odd that he should have become a television hit. Remembering an early poem about Slough in which he writes of "tinned milk, tinned beans, tinned minds, tinned breath," I would have thought that he would have steered well clear of the electronic supermarket. But, of course, Betjeman takes a delight in being perverse.

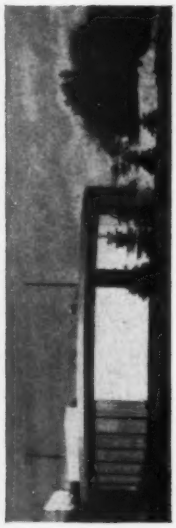
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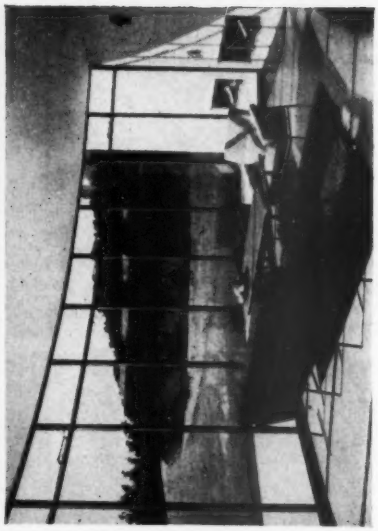
The new volume of his *Collected Poems* (John Murray, 15s.) seems almost certain to convert hundreds of its readers into devout Betjemaniacs overnight. It's all the more welcome in that Betjeman's best in bulk. Any one of his poems may amuse or strike the attention, but the proper thing to do to appreciate their range and variety is to read them by the dozen. One can never be quite sure of what next to expect; any scene may evoke a response, any social habit or affectation may present a target for his satire. Some people talk of "Betjeman country," but it's difficult to know precisely what they mean. The phrase could equally well apply to the suburban Surrey pinewoods frequented by Joan Hunter Dunn and all the other beefy sports girls, the nostalgic Cornish coast, or the melancholy Edwardian London of deserted railway stations, gas lamps and Butterfield churches. Then there are the poems about Ireland, rich of texture, Gothick, strange.

*

Betjeman's love of the accidental, the picturesque and the surprising in town and country must have seemed reactionary sentimentality in the Corb-dominated thirties, and his strictures on modern planning were bound to irritate the post-war optimists with







Recent Work by Arne Jacobsen

These photographs from the exhibition of Arne Jacobsen's work at the RIBA illustrate three recent buildings: left, office building, Copenhagen for A. Jespersen and Son (1955); right, top, Munkegaards School, Gentofte (1955-6); centre, round house at Odden for Sjellandsoddes Fiskerogen, (1957) and, bottom, the sitting room with open fireplace. The exhibition is open from today until March 25.



their Master Plans for the future England. Poems like "The Planster's Vision" are not among his best; he's so much more rewarding when affectionately exploring his own world in infinite detail, or revealing the disturbing, ambivalent nature of his religious beliefs, than when attacking ideas he doesn't approve of; but his forecast of what the planners and town clerks, with their bye-laws and complacent philistinism, would do has proved grimly accurate. Subtopia is sometimes a haphazard affair, but more often it's a highly organized racket.

*

Betjeman's approach to environment is like his attitude to people; he would say that for a place to be really satisfying it's not enough that one should be able merely to admire it; one should be able to feel it, respond to it emotionally. It might please him to think that the trend of planning thought in England may be moving away from abstraction towards a more sympathetic outlook. For example, Ian Nairn recently wrote that "Town making is people; people in all their multiformity and idiosyncrasy." But it's going to take quite a few Nairns and Betjemans to prevent "Dear old, bloody old England, of telegraph poles and tin" from getting a whole lot bloodier during the next decade.

GEOFFREY NEWMAN

DIARY

Le Corbusier. Lectures by Fello Atkinson and Harper Ellis. At the BC, 26, Store Street, W.C.1. 5 p.m. and 6 p.m.

FEBRUARY 26

Exhibition of the Work of Arne Jacobsen. RIBA, 66, Portland Place, W.C.1. Weekdays, 10 a.m. to 7 p.m. Saturdays, 10 a.m. to 5 p.m.

FEBRUARY 26 TO MARCH 25

The Classical Country House in 18th Century England. Three Cantor Lectures by Sir John Summerson. RSA, John Adam Street, W.C.2. 6 p.m.

MARCH 2, 9 AND 16

Ideal Home Exhibition. Olympia.

MARCH 3 TO 30

Fulham Redevelopment. Joint meeting of Housing Centre members and students, Department of Town Planning, University College, London. Chairman: Professor Sir William Holford. The Housing Centre, 13, Suffolk Street, S.W.1. 6 p.m.

MARCH 3

Symposium on Le Corbusier (AA and ICA). At the TUC Hall, Great Russell Street, W.C.1. 6.30 p.m. (tickets 1s.).

MARCH 4

How Can the Advantages of Prestressed Concrete Best be Utilized? Prestressed Concrete Development Group lecture, by Professor H. Rusch, at the Royal Commonwealth Society (Craven Street entrance), W.C.2. 6 p.m. MARCH 4

The Editors

LAYING UP TROUBLE

"THE Case Against the Architect" was the title of a provocative article in the *Spectator* of February 13. In it, Dr. Kenneth Mellanby, the First Principal of University College, Ibadan, Nigeria, and now Director of Entomology, Rothamsted, describes from his own experience the failings of architects, and the scientists' consequent lack of confidence in the profession. His experience is confined, for this article, to laboratories. He is not against the employment of architects, but he thinks their responsibilities should be confined to the "shell" of the laboratory, and all the services and internal fittings should be left to the scientist and the builder, which would ensure "better laboratories at much lower costs" and "far from restricting the opportunities of the architect . . . will give him greater scope for working in the medium he understands."

There will always be dissatisfied clients, and with the growing interest in architecture on the part of the general public the criticism will grow It will rightly grow, in our opinion, if a client is persuaded to dispense with the services of an old-school architect and chooses instead a "modern" architect who is cashing in, with current clichés, on a movement the main feature of which is the attempt to be functional. When these fashion-mongers get found out the whole modern architectural movement is betrayed.

Dr. Mellanby's criticisms may be unfair or unfounded, and his solution defeatist, but his comments are not the first to be made. If modern architecture is to represent what it implies, the profession must do much more, through an information service, immediately, and through education over a long term, to improve its basic efficiency in purely practical matters.

WANTED: A UNIFORM SALARY STRUCTURE

The award of the Industrial Court on the salary claims for chief officers, and senior officers in the lettered grades, belatedly recognizes the merits of a claim put forward several years ago, and obstinately contested by the local authorities. It also focuses attention on the overwhelming need to end the anomalies which arise from the separate negotiating machinery for the lettered and the APT grades. The higher APT scales and lettered grades A and B are now hopelessly entangled, and the anomalies which give rise to so much dissatisfaction affect large numbers of architects just at the period in their careers when they have to shoulder heavy professional responsibilites. This is often decisive in persuading a good man to leave the public service for private practice.

Both staff and employers side have agreed, in principle, for seven years to the simplification of this machinery, to avoid overlapping of grades, but nothing has been done. It is high time that the National Joint Council was able to guarantee uniform treatment and a balanced grading structure by dealing with all salaries and grades up to those of chief officers.



A BRIGHTER BRIGHTON?

What can we hope for when Brighton's University College of Sussex is opened in 1962 or 1963? Not, perhaps, the quality of craftsmanship that Alan Bullock hopes to get at St. Catherine's, Oxford. There won't even be enough money for the building to have halls of residence when it opens, unless some can be raised in the meantime. The architect, Basil Spence, says that the only limitation imposed on him is the "slightly restricted budget" of £1½ m.—rather less than the rumoured cost of Churchill College, Oxford, and about the same—according to Mr. Spence—as one Vulcan bomber.

*

Incidentally, is it such a good idea to put the college at Falmer, four miles out on the road to Lewes in the Sussex Downs? Won't it sprawl out into a small town, by the time it has all the buildings it needs? It would surely be better to have it right in Brighton. A new university always gains a lot if it is put into an old town.

DR. REYNER ARRAIGNS

The Building Centre, which is showing the Corbusier exhibition, continues to pack 'em in. But just to balance up this mass adoration there was a good turn-out at the ICA when Reyner Banham spoke about the great man. The title (*Ouvre Supremées*) suggested that this was to be a priest-unfrocking, clay-feet display such as everyone loves, regrettably. And sure enough *Dr.* (a new title which chairman Theo Crosby plugged very hard) Banham revealed unsuspected weaknesses from Corb's youth. He said that Corb had "suppressed" some of the pre-1922 buildings which have been ferreted out by Henry Russell-Hitchcock and an *Architectural Review* correspondent. Suppressed? Does this mean that the architect denies any knowledge of them? Dr. Banham did not say. It is true that these buildings are omitted from Corb's books. But why not, since they contribute nothing to the great story he had to tell?

*

No doubt art historians should put labels on a couple of very ordinary villas and on the slightly *art nouveau* cinema shown opposite: they certainly make an interesting contrast to Corb's later work. But even if you are a connoisseur of human frailty and a lover of gimmicks, you wouldn't have found the subject worth an evening's attention—even for the sake of seeing the Doctor doing his—as he would put it—nut.

ANY MORE YARN SPINNERS?

Did you follow the reports on the yarn spinners' price agreement, and the decision made against it by the restrictive practices court? It seems that the consumer mustn't pay an inflated price merely to maintain inefficient producers—particularly if this leads to uncompetitive export prices. Moreover prices are not to be kept high just to keep unemployment low. We all know there are innumerable price-fixing agreements registered for the building industry and its subsidiaries, and it is not very hard to think of individual producers whose plant is so old that it can't really be very efficient. I wouldn't point a finger at any building group as being next in the queue for the chopper, but I imagine that a lot of agreements in all industries are going quietly into the dustbin.

BOSTON STUMPED

A couple of weeks ago the AJ showed a photograph of a Boston Expressway as an awful warning of the fate the traffic engineers have in store for us. Since then an old Boston resident has written to *The Scotsman*, describing how the city authorities built garages, put parking lots on open spaces, felled trees to accommodate an overpass, cut a riverside esplanade to ribbons to make way for a fast road and demolished buildings to provide for elevated roadways and fantastic roundabouts.

*

Did this solve the traffic situation? "Not a bit of it," the author (W. R. Angell) says. "Congestion was just as bad; in fact worse." But the city centre began to go downhill until "Boston today is merely a shell of its former self. It has become just another big city, a machine which humans run into every morning and out of every evening."

NO CREDIT FOR GOOD DESIGN

An old story has turned up again in the correspondence columns of the *RIBA Journal*. Readers may remember that Alexander Meikle, the chairman of the Council of the Building Societies Association, has had a lot to say in public about the wisdom of not making money available for modern housing. In his *Journal* letter he repeats the argument that Building Societies, as trustees for the depositors, mustn't attempt to lead public taste and must be cautious of experiments. Apparently public taste, which may lag behind the new ideas of architects and may not even catch up with some of them, largely controls the value of the societies' securities, and new features may be more costly than their traditional counterparts.

*

Mr. Meikle doesn't say how often building societies have lost money by making loans on houses of advanced design. Nor does he seem to realize that there may be a risk in financing jerry-built spec housing which, with a bit of luck, might be hard to sell in ten years time. The building societies are still turning down applications for loans for well-designed (not eccentric) houses, and they would not lose a penny if they changed their policy. But people like Mr. Meikle never recover from the first fright of seeing a flat roof. Incidentally, if—as he says—the duty of the building society is to help members to buy the houses of their choice, it is surely odd to make an exception for those who don't want to choose old fashioned stuff.

SPAN THE GAP?

Until a few weeks ago the studio-accommodation shortage in Kensington was acute. Now—since a row of studio cottages was knocked down opposite Leighton House—it has become frantic. Chelsea and Hampstead are worse off, and outer suburban studios have already been cornered by the winners of major international prizes. What can be done about the needy artists and string quartets? Over to Eric Lyons, a man with a nose for the coming need, the right neighbourhood and the right structural methods for the price. Can't he create some smart new studio colonies for the moderately successful, and thus free the ram-shackle stuff for those who can only give a little for not very much?

GREAT DANES

Brugskunst—it sounds like something Swedish and health-giving to eat, but, in fact, it is something Danish and elegant to furnish with. To be precise it is a neat square book by Birgit and Christian Enevoldsen, reviewing recent furniture, textiles and lamps by Danish designers like Arne Jacobsen, Jorn Utzon and all those. Some of the pieces were seen in the Danish section of the Furniture Exhibition last year, others are quite unfamiliar, all have that fastidious neatness that is so Danish, but would not come amiss in quite a lot of English furniture, if this year's Furniture Exhibition is anything to go by—what really recommends this Danish work is its beautiful detailing, much more than its form, which is often as derivative as ours.

Except that there is now in Danish design, as there was not (say) six years ago, a streak of space-age fantasy, or high finish machine aesthetic. You will be able to see quite a bit of this in the recent curtain wall buildings by Arne Jacobsen at the exhibition at the RIBA, but *Brugskunst* displays it in small objects as well. There is, for instance a *koglekrone* (pendant light-fitting to you) that looks for all the world like something odd from a space-acoustics lab.

UP THE POLES

Nobody has a greater admiration for the Post Office than ASTRAGAL, who entrusts his mail to them with boundless confidence. But when it comes to putting up telephone poles, it's another matter, as the picture of a couple of poles in Chilworth, near Southampton, shows. This small housing estate, built nine years ago, was carefully designed by the architects to preserve its picturesque qualities, and the S.E. Electricity Board agreed to put their cables underground, partly at the expense of the RDC. When six of the tenants got the telephone, the GPO agreed to site the poles inconspicuously, and to bring the wires in at the rear. Now, although no new telephones have been installed, the Post Office, without consulting the RDC, has erected two poles in the middle of the green, from which it intends to serve the houses with wires strung out like a Maypole, in substitution for the former poles. The new poles are part of a 20-year programme, so no doubt the Post Office looks forward to all 26 houses being served this way.

The Post Office's improvement at Chilworth: see "Up The Poles."





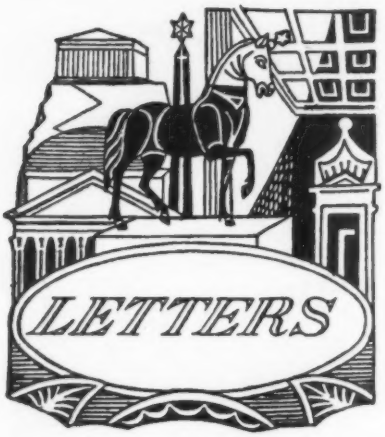
An early cinema at La Chaux-de-Fonds designed by Le Corbusier. See "Dr. Reyner Arraigns".

To remove the poles and put the cables underground would be simple (the cables between the poles are underground already!) and the cost would be only £90. But the Post Office asks the RDC to pay, and has given no satisfaction to the tenants and others who have protested. Will somebody tell Ernest Marples, the Postmaster-General, that there's not much point in commissioning nice-looking telephone kiosks if he's going to indulge in this sort of vandalism?

EDWARD REYNOLDS

It must be unique for the AA JOURNAL to publish a full-dress obituary of an AA student, supported by five pages of illustrations of his work, but in the case of Edward Reynolds, I think the editors were fully justified. His was a remarkable talent, as well as a charming personality, and his entry into fourth year at the mature age of 30 was a real gain for the life of the school. He also left a permanent mark on the direction of student ideas, having been—as Bill Howell points out in the obituary—the instigator of the 1957 New Look in student projects, with their asymmetries, aformalisms and apparent anti-functionalism. But to judge from what ASTRAGAL has heard of his performance in crits, Reynolds was far from an anti-functionalist or romantic personality-cultist, and the drawings reproduced in the AA JOURNAL, though very small, will repay study.

ASTRAGAL



Kenneth Capon, F.R.I.B.A. *and others*, *Architects' Co-Partnership.*

O. Evans Palmer, A.R.I.B.A.

David A. Wilkie, F.R.I.B.A.

J. Mackay-Lewis,
President, British Architectural Students' Association.

Ian Nairn

Peter Grafton, F.R.I.C.S.

Andrew Derbyshire, A.R.I.B.A.

Recent Work by Dead Architects

SIR: We are not sure whether we can fairly be categorized as dead architects, and anyone is entitled to hold his own opinion, but J. M. Richards' article seems to imply not only that practices should not be carried on under the cover of corpses, but also that there are no circumstances in which anonymity should be tolerated. If this is so, some firms in which more than one or two individuals contribute substantially to the design of a building are going to find it hard to stick to a name which anyone can remember.

But as J. M. Richards hopes that in future the RIBA will insist on architects using their own names and no others, and although we really find it simpler to be called Architects' Co-Partnership, we will on this occasion sign ourselves

KENNETH CAPON, PETER COCKE,
MICHAEL COOKE-YARBOROUGH,
ANTHONY COX, LEO DE SYLLAS,
MICHAEL GRICE, MICHAEL POWERS;
with whom are associated
PHILIP GROVES, DENNIS PUGH,
GORDEN REDFERN, JOHN SMITH,
RALPH WILKINSON,
and we should add more.

London.

J. M. Richards replies: I hoped I had made it clear that the target of my criticism was architects who now trade on a reputation earned by partners no longer in practice.

SIR: In 1955 I suggested that architects should practise under their own names, and you, Sir, published my letter under the heading "Why not kill the Dead?" Why not indeed? I feel now as I did then, and agree with J. M. Richards to the last coffin nail. As a matter of fact, the argument is supported by clause 2 of the Conditions of Engagement which states that "the Architect shall give periodical supervision"; but undermined in the succeeding sentence where it is made clear that constant supervision is not required, obviously because this could be made unduly arduous by the complexities of the descent (? ascent).

A barrister of my acquaintance told me that he appeared in an action to determine whether architect "C" or architect "D" had the right to practise as "A and B." Neither of them had the right.

My only regret is that if Mr. Richards succeeds we shall miss the posthumous Criticisms to which I so much look forward.

O. EVANS PALMER.

Horsham.

SIR: The article by J. M. Richards is, I think, timely and I sincerely hope it will have the effect of encouraging the RIBA, or ARCUK, to put a stop to this pernicious practice, which is not only misleading but frankly dishonest, and in my view completely at variance with the spirit, if not the letter, of the Code of Practice, with which more honest members of the profession comply.

In one case an architect, long since dead, was knighted for purely political reasons, but he was never a good enough architect to become a member of the Institute during his lifetime, yet the firm is allowed to continue in his name to this day, thus taking an unfair advantage over other practising architects, who may be more gifted professionally than the original titled head of the firm.

I am sure that many other practising architects feel equally strongly about this unfair competition and I wish Mr. Richards every success in his efforts to stop it.

DAVID A. WILKIE

London.

BASA Conference

SIR: The British Architectural Students Association is deeply concerned with architectural education. We feel, however, that before we can sensibly discuss architectural education we must decide on the function for which we are being trained. To this end we are holding a week-end conference at Trinity Hall, Cambridge, on April 4 and 5. The theme of this conference will be "The Function of the Architect in Society." One hundred and fifty places have been booked and we hope that out of this number a third will be from the profession, a third students and a third public.

This is to be the first of three conferences; having decided what the function of the architect should be, we will then hold a second conference so that we may decide how best to educate him for this function. The final conference will discuss how the architect is to put this function into practice, *i.e.*, his relationship with the quantity surveyor, structural engineer, builder and the many other specialists.

In our first conference the client will play the dominant part. Papers will be delivered by three important clients representing the State (Local Government), industry and the developer. These papers will outline the service the client feels he should have from his architect; and will be replied to by three eminent architects outlining in each case the service they feel the architect can give to their client. Three architectural students will then present short shadow papers illustrating the younger generation's approach to the problem.

After each paper the subject will be put forward for open discussion. We feel that this subject is of the utmost importance. We have more architects in this country than in Europe, or even America, yet our standard of architecture is low. In view of the rapid development of specialization and building techniques the architect must reconsider his position in relation to these and many other problems so that he can give the maximum efficient service to his client in accordance with good architecture.

It is therefore essential that we as architects—men of imagination—should take the initiative and reorganize ourselves before we are reorganized to our own detriment. Should we be a profession at all? Radical questions like this should be given serious thought.

Further details and the names of the main speakers will be advertised in the near future. Those who wish to make advance bookings for this conference should write to the Permanent Secretary, BASA, Building Centre.

I should like to add that the president of the RIBA wholeheartedly supports this conference. I hope that we will receive enthusiastic support for what, I am sure you will agree, is an important issue for the revival of the public's faith in and respect for the architectural profession.

J. MACKAY-LEWIS.
President, BASA

London.

Outrage at Ovington Square

SIR: Well, bless my heimatsoul! What on earth would Mr. Segal have written if I had been really rude? Young innocent that I am, I thought I was being *tactful*.

How can I make someone as catchphrase-chocked as Mr. Segal seems to be, realise that Counter Attack has no party line in or preconceived tastes for anything. It only believes in particular cases, particular solutions and things being good of their kind, whatever kind. Hence, in Ovington Square, either respect what's there already or really shock the neighbourhood and make something good out of the result. The unforgivable thing is to poodle around in between, and Mr. Segal's building does exactly that—a little fussy woodwork, a bit of fancy brick, a timid half-story creeping above the surrounding roof-line.

This is no great dragon-slaying twentieth century gesture, just a poor wee beg-pardon bit of (visual) flatulence that wants to be

rude but can't. In other words I think it is (visually) bad of its kind: in fact, it never occurred to me that it was done deliberately—I just thought it was pure (visual) carelessness. And now can I say that I like what I have seen of Mr. Segal's other buildings without him suspecting some fearful deep-laid psycho-political plot?

What with preservationist ladies on one side and Mr. Segal on the other a chap has a hard time maintaining an open pair of uncommitted eyes. A plague on both your houses.

IAN NAIRN.

London.

What is a "Cost Plan"?

SIR: May I refer to your report on the conference at Missenden Abbey concerning Cost Control (AJ, January 29). In dealing with the cost planning example which Mr. Darlow and I gave, you have suggested that we assisted confusion with regard to nomenclature by referring to our work as a "cost plan." You thus give the impression that it was not a cost plan, whereas it most certainly was, although it showed, in addition, how the cost plan was arrived at.

The object of a cost plan (using the word "cost" in its building owner sense), is to indicate the cost implications of an architect's design in such a way that he can see where the money is going, and make sensible adjustments which will ultimately result in the money available being used to best advantage. This does not necessarily mean that it should result in the cheapest building, nor should it exclude other criteria which the architect has to take into account in producing his design solution.

In our example we demonstrated how a preliminary cost plan could be developed from information as to alternative choices of materials and techniques concerned in the various elements of the building, arranged in a manner which permitted the architect to know what the cost implications of his choices were at the time he made them. It further presented a comprehensive picture related to the whole building, so that choices could be made in the light of knowledge as to how they affected the total cost target. The preliminary cost plan having been adduced in this way, would, of course, be bound to suffer some subsequent amendments as the design was developed and costs became known more accurately, and this was a further stage, with which we did not deal in any detail.

I agree with the distinction which Cyril Sweett, in his excellent paper, made between "cost control" and "cost planning." The necessity for cost planning obviously postulates a desire for cost control in some degree. In some cases the margin within which control must be exercised may be fairly wide; other cases, such as the examples given by Messrs. Nott and Whitley, require stricter control. The method they adopted is obviously useful in cases where a particular type of building of a largely repetitive kind has already given rise to cost information which enables separate targets to be set for different elements of the building. The setting of such predetermined elemental cost targets, as compared with an overall target only, should, however, in my view, be used merely as an approximate check on economy of design, and not as a limiting factor within the element concerned; unless cost *control* by elements is, in fact, prescribed and the architect thus strait-jacketed, so to speak, limb by limb.

What we're after, surely, with cost planning, is bespoke tailoring with an eye to economy of cloth, or even ready-to-wear standard suiting marginally reduced in the light of experience; but not a suit designed on a Procrustean cost dummy!

PETER GRAFTON

London.

The Editors reply: If Mr. Grafton and Mr. Darlow think we misrepresented them, we apologize. So far as we know, the terms "cost plan" and "cost planning" were used to designate the method described first in MOE Building Bulletin 4 and later in numerous JOURNAL articles, public lectures, discussions and so forth. The method described by Messrs. Grafton and Darlow at the Missenden conference differs from this (as we understand it) in at least one essential—there is no setting of cost targets for each of the elements at early sketch design stage. It seems reasonable then to use different terms to describe the two methods, to avoid confusion.

Mr. Grafton's last two paragraphs imply that cost planning entails rigid adherence to the early sketch stage cost targets, but reference to the Police Station example given by Whitley and Nott will surely show that a cost plan is no Procrustian bed! Since terminology was discussed at Missenden, we referred Mr. Grafton's letter to the chairman of the Joint Cost Research Liaison Committee of the RICS and RIBA. He says: "Discussion at the conference confirmed that terminology in the field of building economics was a most important matter. The glossary of terms in the pamphlet *Management Training in the Building Industry* defines cost control as 'a systematic method of allocating costs to projects, departments and services (*e.g.*, labour cost, material cost, overheads). Depending on the type and nature of the undertaking concerned, cost control may be exercised through job costing, process costing or standard costing.' Which does not seem to cover the techniques put forward by the MOE in Building Bulletin 4 or described by Messrs. Darlow and Grafton. The correspondence arising from your report of Missenden serves to underline the urgency and importance of this question.—R. Baden Hellard."

Sheffield Market

SIR: In your issue of February 5 you printed a picture of the new Retail Market Building in Sheffield and gave my name as project architect. May I, as a matter of principle, add the names of my colleagues in this work—John Baldwin and John Taylor who drew the perspective you reproduced.

Sheffield ANDREW DERBYSHIRE



BRIGHTON UNIVERSITY

Basil Spence Appointed

The appointment of Basil Spence as architect to prepare a layout for the new University College of Sussex, near Brighton, was announced at a Press conference last week. The University Grants Committee have allowed £1,500,000 for capital expenditure up to 1963, which will allow for the provision of teaching blocks, administration buildings and social facilities for an initial number of 800 students (ultimately to rise to some 3,000) but not for halls of residence. The site of the new University is at Falmer, 4 miles from Brighton on the Lewes road. Mr. Spence described it as a wonderful site with some really magnificent trees. The architect, he said, had no excuse in this case for failure, except for a slightly restricted budget.

SALARIES

Court's Award

The Industrial Court has now made its salary award, taking effect as from August 1, 1958, for designated chief officers (including architects) in Local Government and other officers in the senior (lettered) grades. The award, shown in these tables (p. 326) has been adopted by both sides of the Joint Negotiating Committee concerned. Two points should be noted about the salary tables (writes a correspondent). The salary of lettered grades A and B is within the discretion of the employing authority. Deputies to designated chief officers will have their salaries revised to two thirds of that of their chief officer.

This arbitration award comes as the culmination of long-drawn-out negotiations in which the Staff Side of the Joint Negotiating Committee took their claim to arbitration because they felt that the authorities' offer of 5 per cent was "utterly inadequate." Like all arbitration awards this one is in the nature of a compromise and by no means concedes the original claim.

The award means that the salaries of chief officers have now more or less caught up those received in comparable fields of employment; their increases vary between 8 and 18 per cent. Whilst the higher scales

of the lettered grades have received similar increases, the lower lettered grades—A and B—have not done nearly as well. At the time of the revision of the APT Scales in September, 1957, the lettered grades were given interim increases, of £60 in Grade A and £35 in Grade B. Thus the total increases in these two grades, even *including* the interim increases of September, 1957, are only in the region of 5 per cent.

An increase in the salary scales of senior officers in new towns (above New Town APT Grade VII) should follow shortly on this latest award in local government, but the award to senior officers is not likely to have any effect on the general claim now being considered for APT grades in local government.

When salary adjustments are made several years after they fall due there is bound to be a feeling of dissatisfaction created even though the settlement may be considered to be a reasonable one for the more senior officers; those years of waiting have meant money out of the pockets of the officers concerned.

The part played by the Employers' Side in the negotiations is quite extraordinary. One would have thought it was in the interests of all local authorities to stop a drift from local government service to private practice of capable architects and others. The authorities' original offer of 5 per cent did not bear any relation to known changes in the cost of living and salary changes in other comparable fields of employment. Indeed, at the Industrial Court, it was argued on behalf of the Employers' Side, that in the economic interests of the country, to restrain inflationary impulses, pay increases should *not* keep pace with rises in the cost of living.

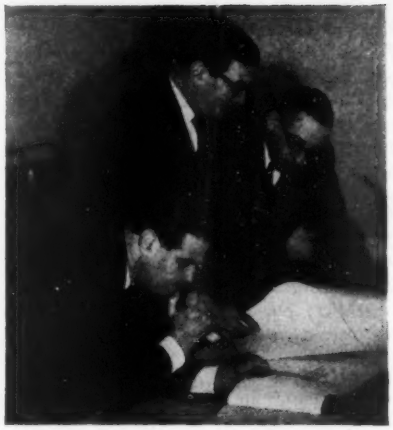
The special position of lettered grades A and B needs to be considered in relation to the overall claim for the APT Grades which is at present before the National Joint Council. The Staff Side have proposed, in the light of known rises in salaries in comparable fields of employment and in the cost of living since September, 1957, that APT IV salary scale should now be £1,120-£1,270 (present scale £1,025-£1,175) and APT V should be £1,270-£1,450 (present scale £1,175-£1,325). If this claim is conceded an officer may well earn a salary on Grade IV higher than his superior on lettered Grade A, and an officer on Grade V a higher salary than an officer two grades above him, on Grade B.

Table 1. New scales for "lettered grades"

Grade	*Salary scale*	*Increase*
A	— £1,390	About £10
B	— £1,485	,, £45
C	£1,385–£1,620	Between £90 and £105
D	£1,520–£1,755	,, £115 ,, £130
E	£1,655–£1,885	,, £140 ,, £150
F	£1,790–£2,085	,, £165 ,, £185
G	£1,990–£2,280	,, £200 ,, £215
H	£2,195–£2,475	,, £240 ,, £245
I	£2,325–£2,610	,, £260 ,, £270

Table 2. New scales for chief officers.

Population	*Minimum salary*	*Increments*
Under 10,000	Between £790 and £990	2 of £70; 1 of £60
10/15,000	,, £790 ,, £1,125	2 of £70; 1 of £55
15/20,000	,, £990 ,, £1,320	2 of £70; 1 of £60
20/30,000	,, £1,055 ,, £1,455	2 of £70; 1 of £60
30/45,000	,, £1,185 ,, £1,725	1 of £70; 3 of £65
45/60,000	,, £1,385 ,, £1,930	1 of £70; 3 of £65
60/75,000	,, £1,655 ,, £2,195	2 of £70; 2 of £65
75/100,000	,, £1,790 ,, £2,465	2 of £70; 3 of £65
100/150,000	,, £2,060 ,, £2,735	2 of £70; 3 of £65
150/250,000	,, £2,325 ,, £3,000	1 of £115; 2 of £110
250/400,000	,, £2,660 ,, £3,340	1 of £115; 2 of £110
400/600,000	,, £2,795 ,, £3,605	3 of £135
Over 600,000	At discretion.	



The assessors in the Ideal Home-*RIBA small house competition are here seen judging the record number of* 1,523 *designs entered. Left to right, Eric Ambrose, Peter Dunham and Clifford Culpin. The names of the thirty prizewinners should be announced next month, and the winning designs will be published in book form towards the end of the summer.*

OBITUARIES

W. H. Ansell

We regret to announce the death at the age of 86 of William Henry Ansell, C.B.E., president of the RIBA from 1940 to 1943. Mr. Ansell had a long record of service to the RIBA and to the profession as a whole. He served as chairman of the Board of Architectural Education from 1931 to 1934, vice-president of the RIBA from 1933 to 1935, hon. secretary from 1938 to 1940, and then served three years—an exceptionally long term—as president in the difficult war years. He had also been president of the AA, in 1928, chairman of the Board of Architectural Education of ARCUK, and RIBA representative on the Registration Council.

Eric Jarrett

Eric Jarrett, who will be remembered by thousands of past students of the Architectural Association, Bedford Square, died on February 20 at the age of 70. He started teaching in 1919 and was on the staff of the AP for 31 years, retiring in 1950. In addition to undertaking studio work, he lectured in history, excelled in precise draughtsmanship, took photographs and was editor of the *AA Journal* from 1924 to 1939. In the course of this unparalleled length of service he was associated with nearly all the AA events, and was a tranquil, considerate, unshakeable figure in the effervescent student world. Since his retirement he continued to help the AA by taking colour transparencies for the slide collection, and he was quietly working, as usual, until the evening before he died.

RICS

False Economy

Housing design has been hampered by an undue insistence on capital economy without a clear realization of the effects of that economy on the costs of maintaining the dwellings and on amenity generally. This was one of a number of criticisms of national housing policy made by L. G. Brooks, A.R.I.C.S., in a paper on "Managing the Nation's Houses" at the RICS last week.

He pleaded for greater attention to be paid to the impact of design on maintenance and management. "One has only to participate on the procedure for securing loan sanction of houses," he said, "to realize that the main object of the exercise is to enable the design to be fitted into a predetermined capital cost, often irrespective of long-term effects. Our architectural friends are also guilty to some extent, in so far as their designs often fail to pay the least attention to subsequent maintenance costs.

"The management surveyor must shudder at the effect on his repairs fund when he sees, for instance, painted weatherboarding used as a cladding for walls. I am not, of course, advocating that the designer should be denied any opportunity of securing variety but merely that he should remember that £1 on the capital cost represents 1s. 2d. per annum on the rent, but £1 per annum on maintenance costs means about 4¼d. per week on the rent. In other words, in terms of rent:

$$\text{capital cost} = \frac{\text{revenue cost}}{17}$$

This is a formula which might be included in text-books."

Mr. Brooks also complained that because the methods used by local authorities to assess housing need differed no accurate or even reasonably accurate national figures were available. He suggested a standardization of "points" schemes. The minimum repairs allowance (£8 per house per year) that local authorities must set aside for repairs was, he said, ludicrously low, and should be raised to at least £15.

The principal stumbling blocks in improvement grants were, he thought, the omission of necessary repairs from grant aid, and the absence of any method of ensuring that adjacent properties of the same calibre were dealt with more or less simultaneously. He therefore suggested that local authorities be given power to designate houses and areas as "improvement areas," within which they could give free grants for repairs, and acquire houses whose owners were unwilling to repair or improve.

MODULAR SOCIETY

The First Large-Scale Modular Building

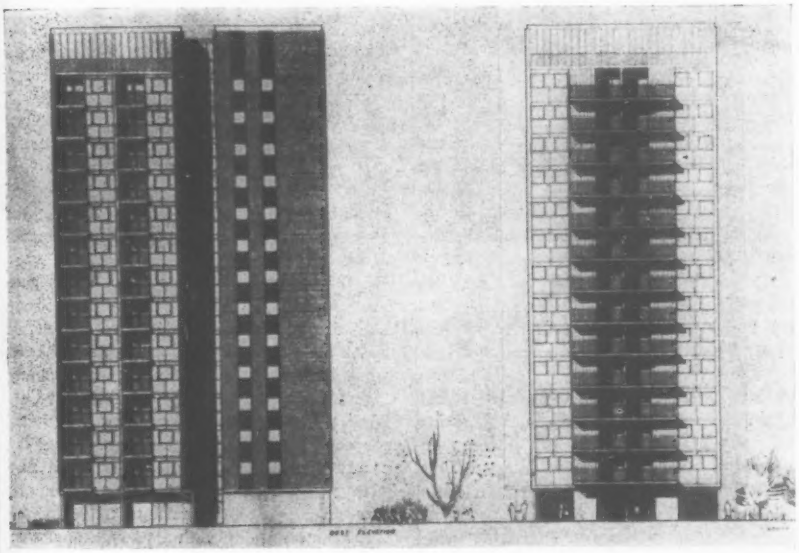
On February 18 Professor Sir William Holford and Donald Fraser, Projects Manager of The Unit Construction Company, gave a joint talk at the Building Centre on the 14-storey block of flats on which they are engaged at Kensal New Town on the borders of Paddington and Kensington. (Note: this was a "new town" built 120 years ago to house the families of workers engaged on building Paddington Station).

The evening's programme was not so interesting as it was originally planned to be, as work on the site had been delayed six months and is only about to start.

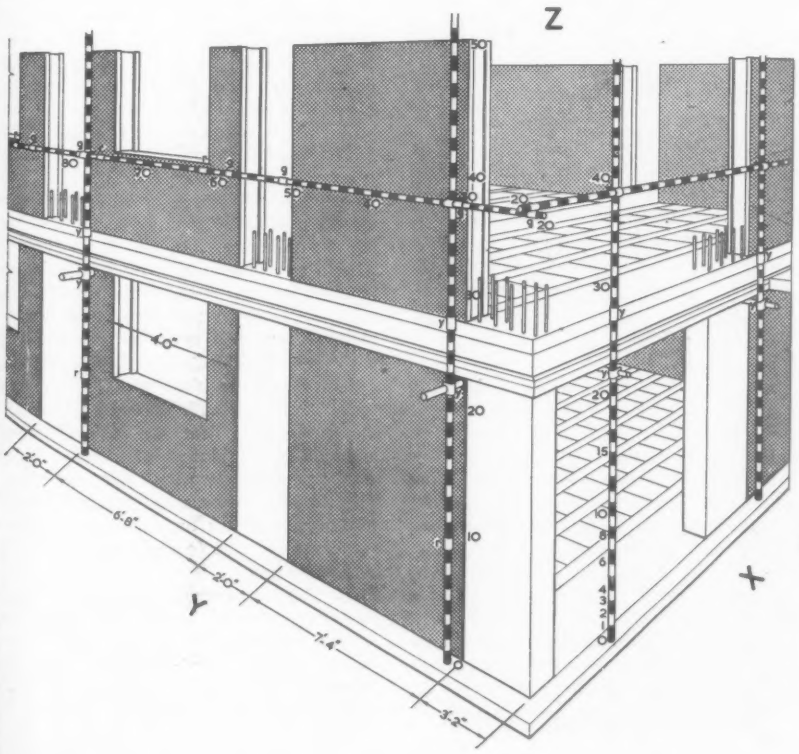
The wallframe system

Roger Walters was in the chair. Donald Fraser began by rehearsing the advantages and progress of Modular Co-ordination and by describing briefly his firm's share in the job. This is a reinforced concrete building designed on Unit Construction's "Wallframe" system adapted to a 4-in. module. The chief characteristic of this system is that the inner skin of the infill panel walls, which are of p.f.a. blocks, are built, storey by storey, in advance of the columns and thus serve as shuttering on two sides. These blocks are all 8 in. deep and 8 in. high and are made in three lengths, 8 in., 12 in. and 16 in.

The floors are of reinforced concrete slab and beam construction, designed so that their overall thickness (*i.e.*, from the bottom of the beams to the top of the 7-in. floor finish) is 20 in.



Above, elevations of Sir William Holford's first 14-storey block of flats at Kensal. Below, perspective diagram showing Donald Fraser's method of setting out.



Modular brick panels

Sir William Holford, who followed, then described his share in the project, testifying to the ease with which the internal planning was brought to conform to the 4-in. module. From the modular point of view, the most interesting aspect of the design is the external brick cladding, which is of non-modular flint bricks in 4-ft. by 2-ft. panels resting on the boot lintel at each floor level. These panels are made up in a number of different designs composed of 40 ordinary bricks and four 6-in. long "jokers." Sir William also referred to the modular plumbing, which is contrived in a single, central duct. In the discussion which followed, the representative of the plumbing contractors (Arthur Scull & Son Ltd.) made it clear that the plumbing was no more than a plumbing installation designed to fit in a modular building. It was designed on the firm's patented "yoke" soil and waste system. This is an adaptation of single stack plumbing to tall buildings, using a single soil and waste pipe, a single anti-siphonage stack and taking all soil and waste connections into a connecting pipe which joins the two together.

Modular setting out

Donald Fraser next discussed the problem of how to bring traditional site practices into line with modular requirements and proposed a new method of setting out a building and of checking measurements while it is still under construction. This method is based on the grid reference system put forward by the Modular Society in connection with the Modular Assembly (see JOURNAL for January 1, page 9). This uses a three dimensional referencing system with two horizontal axes "x" and "y" each set 20 modules (6 ft. 8 in.) outside the building line and a vertical axis "z." Donald Fraser applied this system to the site by using a set of 20-ft. long aluminium tubes marked off in alternate black and white bands, each 4 in. wide. Vertical tubes are set up on the z axis and at convenient distances along the x and y axes and round the perimeter of the building and horizontal tubes are clamped to these verticals. Four-in. wide coloured sleeves are then passed over the tubes and are fixed (by pins passing through the tube wall) at points where columns and window openings occur on plan and where edge beams occur on elevation. Where the initial setting out is done (*i.e.*, by sighting across these markers)

the vertical poles are moved onto the toe of the site slab and these and the horizontal poles are used to check the accuracy of all the major structural parts as the building goes up.

Discussion

In the discussion which followed, the consulting engineer, R. D. McMeekin, remarked on the ease with which his office had been able to conform to modular dimensions. He pointed out the suitability of reinforced concrete for the work since, when the external dimensions of the concrete have to make an abrupt modular change (*e.g.*, from 24 in. to 16 in.), it is a relatively simple matter to compensate by increasing the thickness of the steel.

Several speakers from the contractor's side feared extra costs in supervision owing to the difficulty of keeping continuously on station as the building goes up. Bruce Martin, however, pointed out that modular building occasions not tighter but looser tolerances, since all components are known to observe a sufficient tolerance in themselves before you start and variations in size will all be in the minus direction. If, therefore, you go off station at some point it is proportionately easier to get back on again.

It is clear that the building will be a useful test and we look forward to a later meeting when first-hand experiences on it can be described.





The controversy about the participation of architects in the design of motorways lends some interest to these progress photographs of London's first flyover to be constructed for many years. It is at Chiswick, in Middlesex, and carries the new Cromwell Road extension into the Great West Road and the beginning of the future South Wales motorway. Top, the brick-faced retaining wall of the approach embankment, and bottom, the massive piers of the bridge.

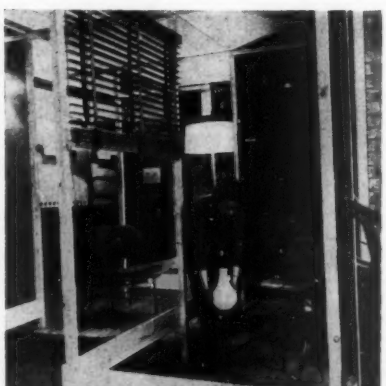
A "Modern Homes" Exhibition has been presented for a week by the Liverpool Architectural Society, together with some lectures to which many well-known architects contributed. Both were remarkably successful. Attendances greatly exceeded the organisers' expectations, the press and television gave it wide publicity, and architects were thus able both to present their views on design to a wide public and to stimulate great public interest.

"MODERN HOMES" EXHIBITION AT LIVERPOOL

Reviewed by Paul Brenikov

If a member of the ordinary general public on Merseyside wants a house, it is unlikely that an architect will play any significant part in satisfying his needs. The vast majority turn automatically to the speculative builder. Only a tiny minority would even consider employing an architect on their own account. To try to break down this apparently impenetrable barrier of ignorance and apathy, the Liverpool Architectural Society staged a one-week "Modern Homes" exhibition at the Bluecoat Chambers designed to drive home to the public—and their builders—just how much the architect can do for them and how vital his contribution can be.

The exhibition set out to do this in several ways. The main display consisted of plans and photographs of recent houses on Merseyside designed by architects. This included both houses for private individuals and speculative builders. The possibilities of new materials, fittings and heating techniques were demonstrated in a separate exhibit. The hideous consequences of our failure to design and plan sensibly were pilloried in a "Subtopia" exhibition and the students of the Liverpool School of Architecture contributed two "how-to-do-it" interiors furnished as a living room and a dining room.



A section of the exhibit of new materials, fittings and techniques.

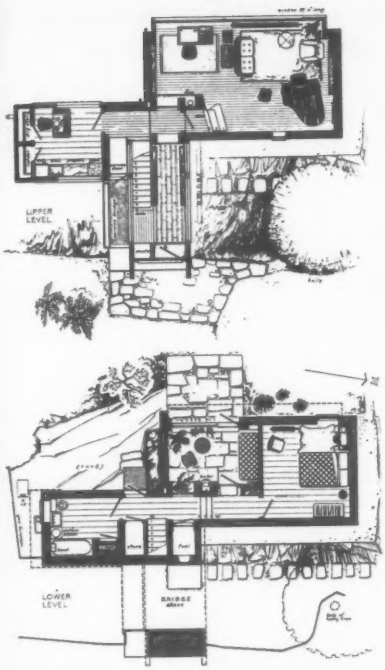
In addition to the displays the more serious-minded were offered a series of four evening lectures on various aspects of the housing-and-design problem. The case for and against the present form of local authority control over design was examined under the chairmanship of Grenfell Baines, with Frank Barnes (Clerk to Hoylake UDC), U. Aylmer Coates (County Planning Officer, Lancashire) and Tom Mellor (private architect) as the main speakers. The debate was lively but inconclusive, and demonstrated once again how easy it is to criticize the existing system and how difficult to propose a workable alternative.

On the following evening Eric Lyons gave an account of his own work in the housing field. His talk demonstrated most effectively the kind of results that can be achieved when architect and developer work closely together. Even allowing for the fact that this type of development perhaps constitutes a special case, each project shown was far in advance of anything in its class, not only in layout and design but also in the methods adopted for administering the finished estate. One was left with a strong impression that the pattern for future private housing development should be along the lines pioneered by Mr. Lyons.

Recent advances in construction and new methods of lighting and heating were discussed by two lecturers from the University of Liverpool: John Page, a building scientist, and Duncan Stewart, an architect. Their demonstration was designed to show how a house can be made more efficient and economic as well as more pleasant to live in if proper attention is paid to the design of the fittings and equipment.

In the last talk, three practising architects discussed houses recently completed for clients on Merseyside. In each case the particular problems involved were analyzed together with the methods used to overcome them. Each of the examples chosen for detailed examination were built to fulfil the needs of individuals or families having rather special requirements. In one case the owner's wife suffered from arthritis, in the other the client was a professional historian living alone and doing a great deal of research work in her own home. The third owner was an architect himself who wished to try out new ideas on construction and the organization of space within the house.

These highly personal requirements were inevitably reflected in the plan form and exterior treatment of the buildings, in the use of new and varied materials, and in the treatment of the spaces enclosed. But notwithstanding their undoubted success as



On this page are illustrated some of the exhibits in the "Modern Homes" exhibition at Liverpool, which is reviewed on the opposite page.

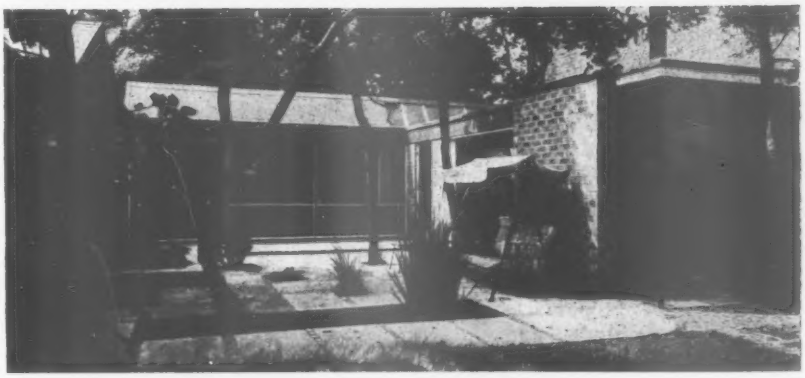
Top right: "Birkenland," Bidston Hill, Birkenhead, designed by Dewi-Prys Thomas. This small house is built on a steeply sloping site (plans above). The living room-study on the upper floor commands an extensive view of Wirral and the N. Wales coast. The lower floor contains the bedroom and garden room with access on to a terrace.

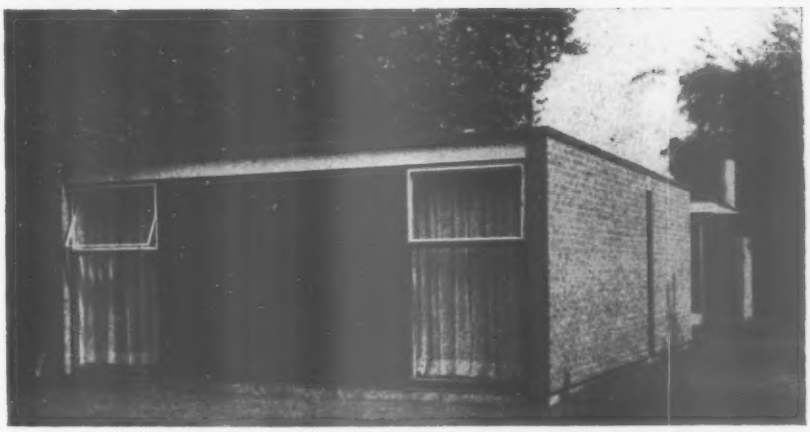
Above right: house at Woolton, Liverpool, designed by Gerald R. Beech for his own use. The playroom lies across the courtyard with living room on the right. The playroom is separated from the living room by a study. There is electric floor heating with an open fire in the living room.

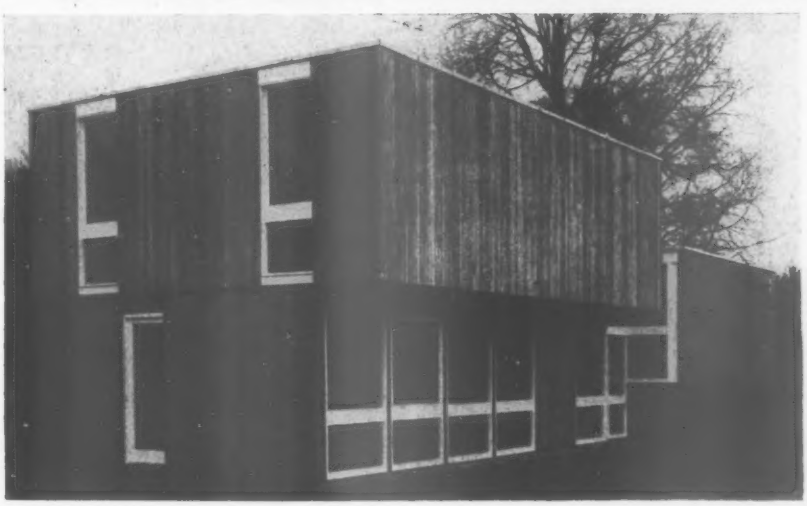
Right: house at Oxton, Birkenhead, designed by Roy Parker. This is the architect's own house built on a restricted site overlooking Birkenhead Park. This austere elevation belies the comfort of the interior. The living room has 7 ft. 6 in. ceiling height with bare wood joists and ceiling beams and takes in extensive views of the park. The electric floor heating is reported to be so economical and efficient that building a fireplace was a waste of time.

Bottom right: house at Neston, Wirral, designed by Nelson and Parker.









pieces of individual design and demonstrations of the architect's skill in solving his client's problems for him, the examples lost some of their force as illustrations of modern domestic architecture because of their highly specialized features. Something would have been gained by including at least one more orthodox example on a standard site in a closely built-up area.

Most of the designs on display in the exhibition itself emphasized the compact form of the modern house, and this was brought out very well in the examples discussed. Mr. Thomas's treatment of the circulation space in "Birkenland" was particularly interesting. Here, the entrance hall provides a clear view through the living room of Wirral and the Welsh hills beyond, and the passage between the kitchen and the living room makes a point of special interest where it cuts across the end of the hall. All three houses illustrated the freedom of interior arrangement provided by a central heating system. Some made provision for open fires but the occasional odd-shaped chimney suggested that this particular part of the design presents special difficulties all of its own.

From the layman's point of view the plans and photographs on display raised a number of questions which were not satisfactorily met. The first was the question of cost. There was little or nothing to suggest even what range of price had been paid for the houses illustrated. Although understandable, this omission was particularly unfortunate since the belief that an architect is an expensive luxury is still very widespread among the general public. The second was the marked concentration on single detached houses for individual clients. Very few people expect to be able to buy a house of this type, no matter how attractive it may look. Greater emphasis should surely have been given to the architect-designed housing estate. This would have had the added advantage of interesting the builder as well as the ordinary family in need of a house.

As an exhibition this venture seems to have been a great success. Thanks to a considerable amount of advance publicity on the part of the organisers the displays and the evening discussions received very full coverage in the local press and were well attended. How far it has succeeded in its main objective remains to be seen. The visitor was certainly left with a very clear impression of what an architect does and how his skills can be used in house design. Most people seemed impressed by what they saw and heard. This in itself is no mean achievement, for the task of selling the architect's skill convincingly to a lay public unfamiliar with his function and training is never easy. Where such a very personal matter as a private house is involved it is harder still. This exhibition suggests one way in which this can be done. It is to be hoped that the experiment will be repeated elsewhere, for it is clearly very well worth while. The Liverpool Architectural Society certainly deserve to be congratulated on a serious—and we hope successful—attempt to raise the general level of public taste on Merseyside.

The value and importance of the development group, as pioneered by the Ministry of Education, is the main theme of an interim report sent by the Royal Institute of Public Administration to government departments. We print it here at length because the arguments (which we have ourselves propounded so often) are well put and merit repetition.

LOCAL AUTHORITY DEVELOPMENT GROUPS

Royal Institute of Public Administration's Report

The Institute's Memorandum says, in part: During the course of its investigations, the Steering Committee has been impressed with the pioneer work carried out by the Development Group of the Ministry of Education and by the need for work along similar lines for other types of building for which local authorities are responsible. Discussions with many local authorities of different size and scope reveal a widespread difficulty for individual authorities to devote sufficient time and attention at the early stages of a building project, to the investigation both of the user needs of the building and the various technical means by which such needs can be met. While this is particularly true of the less usual type of building, shortages of staff and pressure to complete the buildings make fresh thought and reappraisal difficult even for large programmes. Generally speaking, more work has been done on the technical side on problems of materials and methods of construction than on user needs. As examples of development work in the technical field, the London County Council has been responsible for valuable work on building materials, techniques and contracts, while Nottinghamshire County Council has taken a lead in a consortium of local education authorities which has been doing pioneer work on building methods and materials for schools. Such work is, however, exceptional and limited to a few authorities and to a small range of buildings, principally housing and schools. Other authorities have done experimental work, sometimes in collaboration with the Building Research Station, but generally speaking such work has been modest and preoccupied with specific building techniques.

Organisation of Development Groups

The work of the Development Group of the Ministry of Education has shown how great a contribution can be made to the general body of thought and experience on schools by an exhaustive examination of user needs and costs coupled with actual experience of erecting a small number of schools on behalf of local education authorities. This pioneer work, which has been embodied in Building Bulletins, has enabled the Ministry to give advice in a form which apears to be more readily acceptable than that sometimes offered by other government departments, because it has been based on searching examination and practical experience. Coupled as it has been with fixed ceiling costs per place, minimum standards and a capital programme fixed well in advance, it has provided a workable administrative framework and yet left to local authorities a wide and clearly defined field for individual direction. The Development Group was set up to supplement the information already coming in from local education authorities and to ensure, as far as possible, that the advice the Ministry offered and the cost limits it set were reasonable and acceptable. It has been responsible for carrying out special investigations and for building a small number of primary and secondary schools and has more recently embarked on a Technical College at Preston.

The Group consists of administrators, architects, engineers, quantity surveyors and HM Inspectors, who work in the closest contact with each other and with local authorities. It is divided into teams. Each team is responsible for a particular project and acts very much in the role of the private architect to the local authority for whom the building is being erected. Throughout, cost analysis and cost research have played a prominent part in the search for new ideas and value for money, and new techniques and new policies have interacted closely upon each other. The main difference from the work carried out by the architects' department of a local authority is in the size, composition and concentration of the team. These permit a fuller collaboration between the client and the designers and a more detailed investigation of alternative solutions than is possible in normal circumstances. Resources could only be devoted to a single scheme in this way if the lessons to be learned were likely to be of general interest and application and to be widely publicized. There is little doubt that as the result of the work of the Development Group of the Ministry of Education, guidance to local authorities has stood the test of practicality.

Over the last three years there has been an extension of the use of development groups from the Ministry of Education to other government departments and to some public boards. As far as the government departments are concerned, the Ministry of Health has published the first fruits of the work of its development group in a bulletin on "Operating Theatre Suites"*: a group was set up in the autumn of 1957 jointly by the GPO, and the Ministry of Works to investigate Post Office buildings: the War Office is just starting a scheme which is likely to be closely modelled on that of the Ministry of Education; and the University Grants Committee, after an initial appointment eighteen months ago, is now extending the scope of this work on a modest scale to deal with development work in universities.

The composition and range of work of the groups vary from department to department. Although all are concerned with design and standards, not all are working on cost research or on the erection of actual buildings as the practical application of new ideas.

* Bul

Groups which are not responsible for such practical work may perhaps be regarded as in a transitional stage. The basic conception is, however, the same for all: to devote more time and resources than is usually available to a full investigation of requirements and possibilities, and to do this by means of small teams working continuously together in close mental and physical proximity so that the ideas of the technical experts, such as the architect and engineer, interact with those representing the users of the building. By this cross-fertilization of ideas and experience better solutions can be evolved than are possible when each "discipline" works independently.

Housing

In addition to schools, the other continuing and still larger building activity of local authorities is housing. While the general body of experience on housing is large, both among local authorities and in the Ministry of Housing and Local Government, it is somewhat surprising that the Ministry has not yet devoted resources to the study of housing needs and techniques, particularly in the field of flat construction, with quite the same intensity as the Ministry of Education has devoted to schools. The Ministry of Housing has issued a number of Housing Manuals which have given useful advice to local authorities and has recently published a new one entitled *Flats and Houses, 1958*. None of these publications, however, is based on intensive research schemes executed by the Ministry's own architects and they cannot provide the same direct experience of the problems encountered by local authorities which has enabled the Ministry of Education to achieve that vivid contact with new ideas and practical problems which emanates, for example, from the Ministry of Education's most recent Bulletin on *Amersham Junior School*.*

The importance of giving some fresh thought to the design of housing has been stressed recently by the Nuffield Foundation which has given a grant to the Architectural Department of Edinburgh University to set up a research team, which will also be responsible as architects for two housing schemes.

Welcome though the initiative of the Foundation and the University is, it is in many ways regrettable that it should have been left to a private organization and a university to make good this deficiency. Both local authorities and government departments have a wealth of experience which could have been utilized before now, and can be utilized in the future.

With the slackening momentum of local authority two-storey housing and the greater emphasis on re-development, much of which must inevitably be in flats, the time is ripe to take fresh stock of the situation and to initiate a more intensive investigation of needs, methods and costs. This is the more important since habits and standards of living have been changing rapidly. With them should also change the traditional ideas about housing design. For example, television, the motor car and the homework which accompanies more widespread secondary education all have their impact on space and sound standards inside and outside the home. Equally, changes in building techniques, the possibilities of more efficient cost planning and control and the advantages to be gained from a better understanding of the contractors' problems suggest that a great deal could be learned from the kind of work which a development group for housing might carry out. Such a group should have adequate resources to carry out its investigations, to execute a small number of flat and two-storey schemes for local authorities and other bodies, and to publish the results of its research and practical experience.

The field is so wide and the findings of the Group could have so important an influence on design and building costs that every effort should be made to attract first class people. The success of the Ministry of Education has been due very considerably to the calibre of the architects who have been attracted to it, many of them from local government service, because they saw the opportunity for breaking new ground. It is essential that an equally able team should be built up for housing: perhaps even more important, since tradition weighs more heavily on ideas about housing than about schools. Bread cannot rise without good yeast and the success of a housing Development Group will depend on the quality of the leaven.

"One of a kind" schemes

Apart from the continuing programmes of housing and schools, there is a great variety of buildings of which individual local authorities erect only one or two within a long period of years. These include:

clinics	municipal offices
libraries	crematoria
welfare homes	swimming baths
children's homes	markets
fire stations	magistrates' courts

Even the larger local authorities are rarely able to carry out a sufficiently searching examination of the requirements for such isolated types of building. To achieve a satisfactory design may require a more exhaustive investigation of needs than busy staffs can give and a single building will not provide sufficient data for full cost analysis and control. Inquiries among a number of authorities have shown that without a continuous programme they cannot themselves build up the necessary body of experience and that mistakes in design may be made from lack of knowledge about the essential criteria or through insufficiently close collaboration between the client department and the architect. And even when a conscientious authority has spent a great deal of time and effort visiting and obtaining details of existing schemes, it cannot be sure that it has secured the best advice or benefited from the failures of earlier schemes. Nor is it often in a position to know in advance what standards will be acceptable to the Ministry concerned. In the case of the smaller authorities, the effort of carrying out these inquiries individually can be out of all proportion to the value of the results achieved.

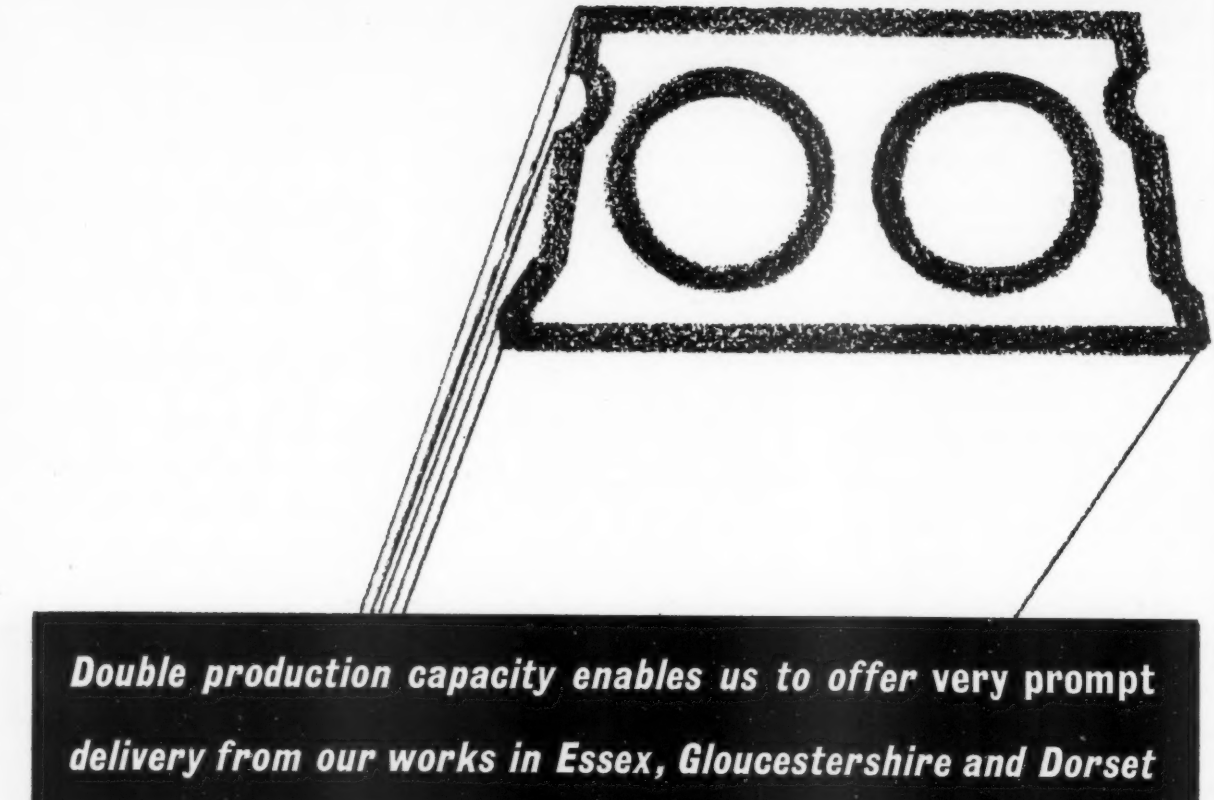
No standardization of designs or imitation of type plans is inherent in the work of a development group. Every building project should differ in detail according to local needs and conditions. Nevertheless, most buildings, which are required to fulfil a similar function, have common problems related to layout, room sizes, circulation space, standards of heating and lighting, fixed equipment and so on. Research into the space standards for circulation and reading and the requirements for lighting and heights of shelving would greatly help an authority planning a new library. Similarly, there are problems common to all authorities in building, for example, children's homes and an investigation into the different kinds of design, layout and equipment which would combine economy and efficiency and yet avoid too institutional an atmosphere would give Children's Committees and their architects a clearer view of the possibilities. For all such buildings the difficulty of individual authorities is to do an intensive enough investigation of the functions of the building, so as to achieve a solution which is both technically sound and economical as well as humanly satisfactory.

The Steering Committee of the Royal Institute of Public Administration considers that an extension of the system of research and development to these less familiar kinds of building would also be very worthwhile. The Development Group of the Ministry of Education is a comparatively large organization, but single teams employing the same methods could be adapted to more modest projects. The essential aim would be for these teams to work closely together, not only in the same building but in adjacent rooms and be composed of the various "experts" required to see the project through. Not all of them will be required full-time on the smaller projects, but it is essential that each individual should feel a part of the team and should readily be able to pool experience and to visit authorities which have built similar projects in different parts of the country. Wherever possible the team should be responsible for the erection of an actual building acting as the architects to the local authority. In no other way can ideas be effectively tested. Practical application has the added advantage that it attracts better architects. Smaller development groups without the political momentum of the school building programme cannot be as attractive to architects as the Ministry of Education's scheme, but they will provide opportunities for architects not at present available in many government departments.

Methods of setting up development groups

If the value of such development groups is accepted, it is necessary to consider what would be the best means of sponsoring them. The Steering Committee has consulted the four local authority associations and the London County Council and is encouraged by the favourable response it has had to its

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suggestions. It has been agreed that the Steering Committee should make an independent approach to government departments, but it is hoped that these departments will be prepared to discuss these suggestions with the associations and the London County Council, with a view to extending the work of development groups to new fields. Hitherto such development groups as have been started have been either entirely within the ministries concerned or organized, as with the London and Nottingham County Councils, entirely independently. There are five possible forms of sponsorship for these groups, including those already in existence:

(*a*) local authorities independently;
(*b*) the local authority associations;
(*c*) government departments;
(*d*) local authorities and government departments acting together;
(*e*) other agencies, such as the Nuffield Foundation, which is already doing work of this kind.

Local authorities

While there is every advantage in local authorities doing work of this kind individually or jointly, experience suggests that none but the largest authorities have the necessary resources, and that their needs and problems are not necessarily relevant to the medium and smaller authorities. Nor have even the larger authorities devoted so much attention to user needs as to technical requirements. It is the very fact that local authorities cannot do sufficient work on their own which has prompted this Memorandum.

Local government

There could be many advantages in the local authority associations drawing on their own experience and setting up independent Development Groups, as has been done in Finland. Such an arrangement has, however, three difficulties. Firstly, the associations have not hitherto undertaken practical projects of this kind and are not organized to do so. Secondly, the cost of even three or four full-time members of a research team with secretarial help would be considerable and again is not the kind of charge hitherto borne by the associations. Thirdly, there would be no guarantee that the standards evolved by these independent Development Groups would be acceptable to the Ministries.

Government departments

So far government departments have been the prime movers in this kind of development work, particularly on the side of user needs. From the administrative point of view, a repetition of the pattern set by the Ministry of Education, both for housing and on a smaller scale for other kinds of local authority buildings, would be a fairly straightforward matter. The Ministry of Housing and Local Government, the Home Office and the Ministry of Health, appear to be the departments most closely concerned with the buildings outlined in paragraph 11. The extension of the idea of Development Groups to hospitals, the University Grants Committee, the Ministry of Works and the War Office suggests that the Treasury might be sympathetic to such work in other government departments dealing with local authorities if it could be shown that better and more economical building would result. Such an arrangement would not, however, permit any active participation by the local authorities.

Joint participation

There are advantages to be gained from bringing the local authorities into the work of the Development Groups. If means could be found of associating the local authorities with their first hand experience of the operations of these services with the work of the Development Groups, there would be direct and indirect benefits to be derived from such a partnership. The Steering Committee has not been able to reach any conclusion with the local authority associations on how such collaboration could be organized, but it suggests that this would be a suitable matter for discussion between departments and the local authority associations. The most straightforward form of local authority participation would be by the secondment of local authority officers, both technical and non-technical, as circumstances required, for limited periods for particular projects. If these seconded officers were from authorities which were contemplating the particular kind of building under investigation, there might not be undue difficulty in such an arrangement. In any event, the Steering Committee recommends that every effort should be made to take advantage of the wealth of experience which local authorities have to offer and to associate them with the work of the Groups.

Other agencies

In spite of any extension of the work of Development Groups associated with government departments and local authorities, it is unlikely that these investigations could cover more than a proportion of the buildings suggested within a reasonable time and there will remain many fields of investigation on which private organizations, universities and others could usefully embark. The grant to Edinburgh University is a case in point. Valuable work has already been done by the Architectural Division of the Nuffield Foundation. It is hoped that such non-official investigations will continue.

It is not possible at this stage to say how far the various Development Groups should be concerned with ceiling costs. Ceiling costs have many advantages and their use can greatly reduce the volume of consultation and correspondence between authorities and departments. A Development Group provides the means of working out these ceiling costs and putting them to the test. But to be acceptable to local authorities, ceiling costs must be realistic at the start and be adjusted to changes in building costs. Such adjustments can only be carried out if there is a continuing organization for doing so. This will depend on the size and character of each Development Group.

Conclusions

The Steering Committee is confident that the extension of the work of Development Groups could be of great benefit to local authorities and government departments alike, for the following reasons:

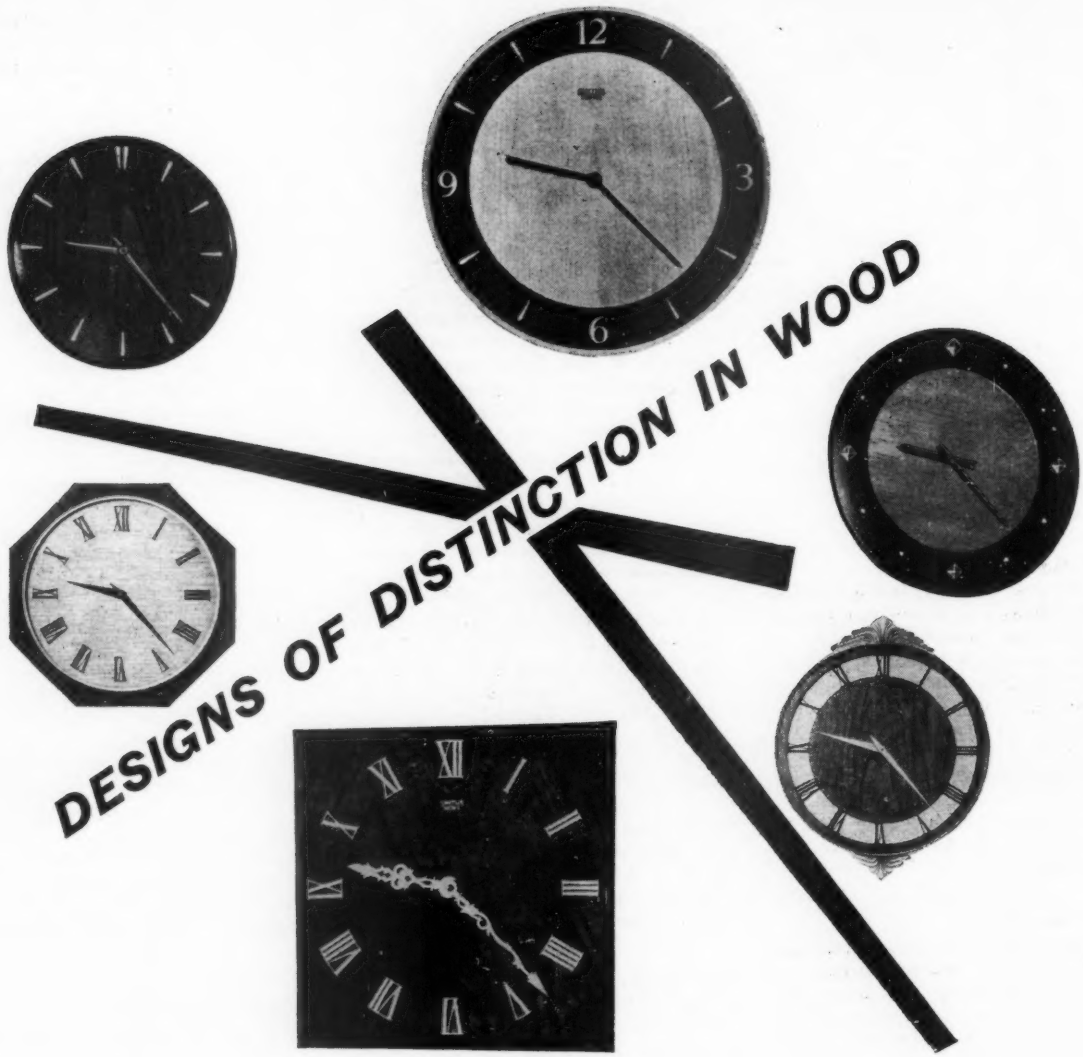
(*a*) The intensive study undertaken by Development Groups would make possible better and more economic buildings;
(*b*) There are unexplored possibilities in design, cost control and building methods which can be investigated much more fully by this means;
(*c*) Government departments would have a more reliable foundation on which to base advice and approvals of local authority schemes;
(*d*) Local authorities themselves would have greater confidence in the advice they received and could use the work of the Development Groups as the spring-board for further advances.

The Steering Committee therefore recommends that:

(i) the work of Development Groups should be extended to other fields of local authority building—particularly
(*a*) housing;
(*b*) buildings of which local authorities only build one of a kind.
(ii) the local authority associations should be consulted and if possible means should be found for the local authorities to contribute their experience to the work of any new Development Groups.
(iii) where the nature of the building and the continuity of investigation permits it the advice given to authorities should be associated with simple minimum standards and ceiling costs, so as to increase the area of their discretion and reduce the volume of submissions to government departments.

Terms of reference

The terms of reference of the research project on "the organisation of building construction and maintenance in local authorities," by the Royal Institute of Public Administration were: 1, To investigate the basic forms of organisation employed in local authorities of various types, populations and areas for, (*a*) designing new buildings and securing their erection, and (*b*) maintaining existing buildings by contract or by direct labour; 2, To pay regard in this investigation to the extent to which councils delegate authority to their committees and to their officers in these matters; 3, To examine the forms of organization used for building construction and maintenance by other public authorities and by privately-owned undertakings; 4, To consider how well the local authorities' forms of organization meet present needs, and in what respects they might be improved. The members of this committee were: R Bradbury (City Architect, Liverpool), W. H. Gimson (Engineer and Surveyor, Woolwich Borough Council), J. P. Macey (Housing Manager, Birmingham), A. W. R. Webb (Engineer and Surveyor, Harlow Urban District Council), Clifford Culpin (architect). Its Research Officer was Mrs. E. Layton.



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10 DESIGN: BUILDING TYPES

second RIBA symposium on laboratories

On February 19 and 20 the RIBA held their second symposium on Laboratories entitled " Laboratories 2." The first was held in March, 1958 (it was reported in the JOURNAL on March 20, 1958), and was entitled " The Design of Teaching Laboratories." As information on this important building type is now beginning to pile up, we preface our report by a *résumé* of our own and the RIBA's contributions to this subject so far published. These are as follows:

User requirements for laboratories
by W. H. Pritchard, published in the JOURNAL
1, The Assessment of Site Services (May 30, 1957).
2, The Specialised Services (June 6, 1957).
3, Laboratory Benches and Cupboards (August 29, 1957).

A study of laboratory daylighting
by J. Musgrove and P. Petherbridge, published in the JOURNAL (September 5, 1957).

Design of teaching laboratories
RIBA Symposium. Report available price 7s. 6d. (March, 1958).
Universities and the Design of Teaching Laboratories by Sir Eric Ashby
Planning Buildings for the Teaching of Science and Technology by S. R. Sparkes
The University Teaching Laboratory by E. Maxwell Fry
Science Buildings in Colleges of Technology by G. Grenfell Baines
Materials and Services by W. H. Pritchard.

User requirements for laboratories
4, School Laboratories
by W. H. Pritchard, published in the JOURNAL (November 6, 1958).

Laboratories 2. RIBA symposium
Text of the papers now available, price 10s. (February, 1959.)
A monograph based on the discussion will be available shortly, price 10s.
Planning Bench-type teaching Laboratories by Anthony Cox
Laboratory Design for School Chemistry by W. H. Lloyd
Planning Bench-type Research Laboratories by R. Llewelyn Davies, J. Musgrove, and R. G. Hopkinson
Equipment and Services in Bench-type Laboratories by W. H. Pritchard
Adaptability in Laboratory Planning by E. D. Jefferies Mathews
Equipment and Services in Workshop-type Laboratories by K. J. Jarvis
Planning Workshop and Larger Scale Laboratories by H. A. Snow

Subjects still to be covered by W. H. Pritchard in the JOURNAL are User Requirements for Control Laboratories, for University Teaching Laboratories and for Research Laboratories. In addition, Laboratories in Colleges of Technology will be dealt with separately in a forthcoming series of articles on this building type.

In view of the close relationship between the documents published by the RIBA and those published by the JOURNAL, we feel that it is reasonable, in reporting the Symposium, to have regard to what has appeared (or is planned to appear) in the JOURNAL. With this mind, we have decided to print two of the papers, " Chemistry Teaching Laboratories in Universities," by Anthony Cox, and " Labo atory Design for School Chemistry," by W. H. Lloyd virtually in full. These have been chosen for this treatment because they afford useful counterparts to W. H. Pritchard's two articles (one printed and one to come) on User Requirements for these laboratory types. W. H. Pritchard states what the users want: these articles state in detail one way of supplying it. Anthony Cox's paper is published this week, W. H. Lloyd's, and summaries of the remaining articles and of the discussion which took place at the symposium itself will appear shortly.

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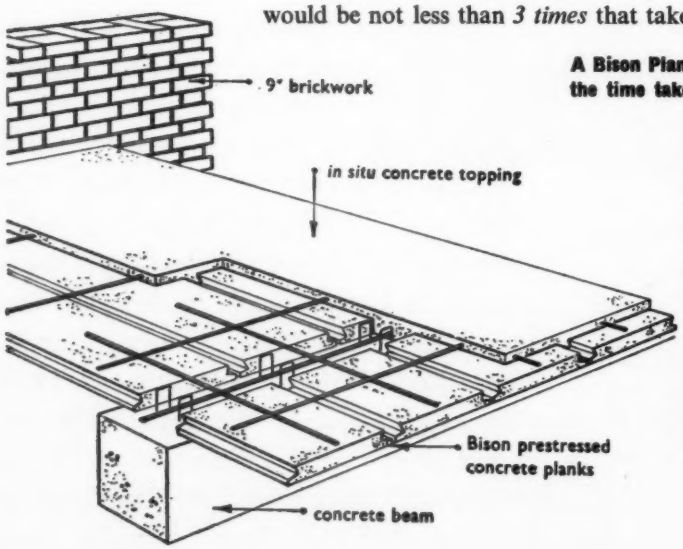


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CON. 121

technical section

Chemistry teaching laboratories in universities by Anthony Cox

This paper is for beginners, and if I were less of a beginner myself it might have been more scholarly or profound. Much of it seems so elementary as to be hardly worth saying, but I cannot believe that is why I have not been able to find it written down elsewhere. There is extraordinarily little general material on the subject, as any architect approaching the problem of the chemistry teaching laboratory for the first time will discover. So in a symposium mainly for architects it may perhaps be of some use.

I am very conscious that unlike those of the Nuffield Foundation my opinions are not based on any methodical investigation, and I am aware of the dangers of jumping to conclusions and of formulating comfortable generalisations. If I am guilty of these faults, I hope this symposium will be able to correct them and add something to the scanty body of published material available to architects and their clients.

I have tried to approach the discussion of the university chemistry teaching laboratory in terms of what people are doing in it because this seems to me the first thing to get straight. I am afraid I do not bite deep enough to question very often why they are doing it in a particular way, and I think it would be useful, and might open the way for new solutions, if this symposium could. I have restricted myself to the laboratory and its immediate ancillaries because this seemed to provide quite enough to start on, and I have avoided duplicating material in our previous symposium. As services are the subject of another paper I have discussed them only where they are directly relevant to the use or detailed equipment of the laboratory. And although I do not discuss costs it is against the background of building more economically where it is appropriate that I have tried to look at the chemist's needs.

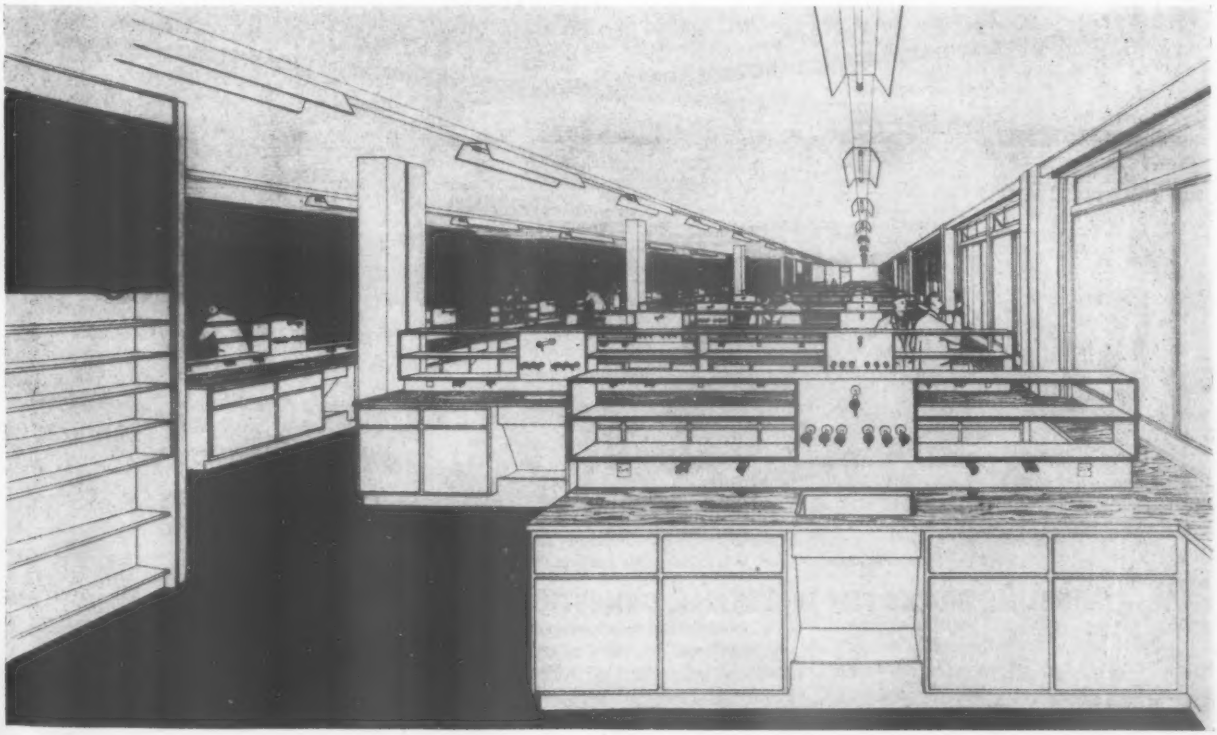
The three branches of chemistry

Three branches of chemistry are normally taught at undergraduate level; organic, inorganic, and physical. Organic chemistry is the study of substances obtained from living or organized bodies, principally the carbon compounds, as distinct from inorganic or mineral substances. Physical chemistry deals with the mechanism of chemical change and with physical methods of investigating the phenomena, and is essentially associated with and overlaps the other branches of chemistry.

A characteristic of organic work is rather smelly preparations, using volatile or inflammable liquids, and there is a tendency for work to be done at the fume cupboard for continuous periods of time, and for operations and equipment to be on a relatively large scale. Inorganic work on the other hand is largely analytical and needs precision and cleanliness; the use of the fume cupboard is frequent but intermittent, and principally for H_2S, which is one of the commonest reagents in qualitative analysis. But these differences do not necessarily imply any fundamental differences in the design of their laboratories, which can be regarded as interchangeable except in the reagents which are provided at the benches. Each student has his allotted place in the laboratory, his "home base," and the operations he performs are really rather like cookery except that the mixtures are more dangerous and the vapours less inviting. The conditions and dimensions he needs for them are not unlike those of the kitchen; a rigid layout is suitable and there is little reason to make any special provision for flexibility.

Compared with organic and inorganic work, physical chemistry is dryer and cleaner, and uses fewer pots and pans: necessarily so, for its instruments are delicate and costly and require a clean atmosphere. It makes less smell and its risks are electrical rather than explosive. On the whole its apparatus is constructed rather than held in the hand, and the form of the construction varies and may be unpredictable; it frequently remains set up for some time and is visited by the students in rotation. The students have no "home base" at any particular bench, and the layout of the laboratory, unlike the kitchen, can permit some degree of flexibility.

Although I have described physical chemistry as a separate branch of chemistry



100-place teaching laboratory, University of Leicester (designed by Architects' Co-Partnership). In the foreground is a peninsular bench with two working places, each of 5 ft. length including half the shared sink. Draining racks, not shown on the drawing, are provided above the water outlets. The waste bin is below the sink. The peninsulars in the background provide four working places each side.

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and although it is taught as such and demands its own laboratory, I think it may be noted that the physical methods it employs, which eliminate the need for much of the lengthy manipulative work at the kitchen type of bench and fume cupboard, are likely to be increasingly used as aids in other teaching. I do not suppose they will become a substitute for what is popularly and accurately called "stinks," but as an adjunct they may influence the relation of the organic or inorganic laboratory to other rooms. For however clean and well ventilated the laboratory, its atmosphere will be harmful to instruments such as the spectograph and polarimeter, and side rooms or ancillaries will be necessary.

Or possibly there will have to be some rethinking of the requirements of the physical chemistry laboratory itself. As far as I can see, however, the basic requirements of the organic and inorganic laboratories seem unlikely to be affected.

Micro methods

What I have to say later in this paper about the design of organic and inorganic laboratories is based on the methods of work and type of equipment to which even architects may have been introduced at school. We all know what a bunsen burner and a test tube look like and a few of us may even remember a retort stand. But some universities are now using what are called micro methods, although as far as I know none has gone over to them entirely. As I understand it the essential thing about micro methods is that work is done with smaller quantities of material, using apparatus of much reduced size—test tubes like a doll's tea set and burettes six inches long instead of thirty. As a result the apparatus can be set out on a bench within arm's reach, and the student can more easily sit down to manipulate it and has less need to move along the bench face. The quantities of material being less, the reagent bottles can also be smaller, and therefore each student can have a much wider variety of them at his place and needs to make fewer journeys across the laboratory to side shelves. It seems reasonable to suppose that fume cupboards could be much reduced in size and perhaps fundamentally changed in design: if this is so, one wonders whether they might be located at the student's bench, so that almost all walking about is eliminated. In fact our approach to the design of the laboratory might be completely altered. All I can say at this stage is that I feel that the implications of the development of micro methods should be studied, or we may be building quite unsuitable laboratories before we realize it.

Method of teaching

The method of teaching in all three branches of chemistry is much the same. The lecture theatre is used for theory and demonstration: in the laboratory the student learns the application and the manipulative skills. Little formal demonstration is now done in the laboratory, even in the first year, and in consequence a demonstrator's bench is rarely needed. The Demonstrator, as he is still called, may have a table or an office, but his function in the laboratory is not unlike that of a studio master in an architectural school; he will go from bench to bench, or just sit around doing something else until a student asks him a question. He will be responsible for discipline, an important factor because of the risk of accidents, and for this reason he will want a reasonably good view of the whole laboratory wherever he may be. He may need a blackboard in order to elucidate something to a small group, but is unlikely in a large laboratory to wish to do so to all students simultaneously. In fact there will usually be more than one demonstrator, each looking after fifteen to twenty students.

First year classes will be larger than the others, particularly when there are engineers or medicos doing one year of general chemistry. One hundred seems to be a popular number, but I do not know whether there is any good reason for this. Laboratory periods will be relatively infrequent in the first year, perhaps two or three hours' duration each week. In the second and third years the number of periods will increase, perhaps to as many as six periods of three hours in a week, and students may spend the whole day in the laboratory. For this reason a laboratory is often set aside specifically for the third year. I suggest this may have some bearing on our attitude to daylighting and prospect generally: in a laboratory with a hundred places it may not be easy to obtain 15 lumens/sq. ft. everywhere on the working plane without toplighting or artificial light, and in some circumstances there may be strong arguments for dispensing with natural light altogether if the laboratory is only to be used infrequently by any one class of students and then only for half a day.

Bench design

For organic and inorganic work the factors affecting bench design are virtually the same. Both want cold water, town gas, and a.c. electricity at each working place, and other services are not usually needed throughout the laboratory, although steam may be useful at a few benches and will almost certainly be wanted in the fume cupboards for steam distillation and for evaporating. Vacuum can normally be got from filter pumps attached to the water taps. Probably one 13 amp. socket outlet and one three-way gas outlet will be enough at each place. Water outlets need to be more abundant, and it is unlikely that each student can do with less than three for filter pumps and condensers (all of which will be running to waste) and one from which actually to draw water, this last being shared by not more than two students. Free outlets should be at least 12 in. above bench top, and the others about 6 in. to keep lengths of rubber tubing as short as possible. The manner in which these outlets are disposed depends as much as anything on the system of waste collection adopted, whether by trough, drip cone, or sink. Troughs and drip cones* enable the outlets to be spread out along the working length of the bench, but both offer too small a target for the routine throwing away of solutions, and troughs tend to get too smelly. There seem to be very strong arguments for having only a sink, about 24 in. by 16 in. with seven water outlets grouped above it; this can be shared satisfactorily by two adjacent students, and is large enough to be used for cold washing up. The only additional wastes then needed will be drip cones where there are steam outlets. Sometimes, on a double sided bench, a sink is placed centrally and shared by four students. Perhaps this is a slight economy, but there seems to be no working advantage, because although it gives a less interrupted bench surface the space so gained is of little value and may be a liability because students have to reach across it to get at the sink.

Gas and electric outlets can be placed at the back of the bench, either on the horizontal surface or on a vertical skirting, or slung exposed below the lower reagent shelf. Or they can be at the face of the bench top and just below it, although this position seems of very little value and has the disadvantage that gas tubing tends to get pulled off. If they are at the back of the bench remote controls from the face are possible, but their maintenance presents problems and their expense seems completely unjustified in a teaching laboratory where the bench is rarely covered with apparatus through which it would be dangerous or inconvenient to reach. Electricity should of course be raised slightly above bench level, and placed as far as possible from the sinks. The clear working depth of the bench will usually have to be a minimum of 2 ft., increased a little if outlets occupy space at the back of it, but not increased too much or the reagent shelves may be difficult to reach.

The frontage per student is unlikely to be acceptable at less than 5 ft., including half the sink if this is arranged within the working top, but a frontage of about 8 ft. would seem to be what chemists prefer, particularly for third year work. Organic work may justify a little more space than inorganic because of the apparatus used.

A different set of reagents will be provided at the bench for the two branches of chemistry. A set of about two dozen bottles will be needed for each student's individual use in each type of laboratory, and about three dozen bottles if the laboratory is used for both organic and inorganic work. The wider the selection at each bench the less the student will have to walk across to common side shelves. Bench reagents are easier to reach if their lower shelf is at least 6 in. above bench level: they may have to be two shelves high, but three shelves should be avoided, for the top shelf is then likely to be too high for comfort and may lead to accidents through overreaching. Other things being equal the top should be as low as possible so that it offers the least obstruction to supervision.

The space beneath the bench top will nor-

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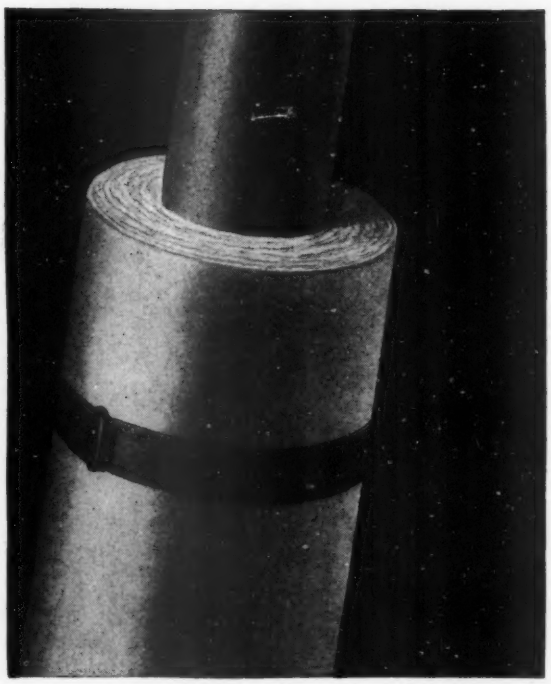
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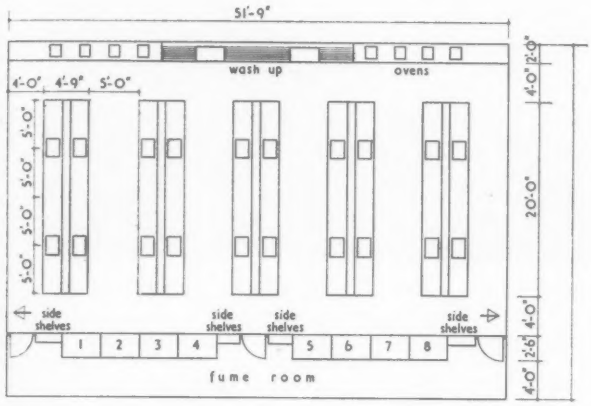
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mally contain lockers, and a waste bin for discarded filter papers and so on, within easy reach. Each student will have his own locker and drawer to contain his personal equipment, usually with his own padlock. The number of lockers to each working place obviously depends on the classes for which the laboratory is used: at 5 ft. frontage, including a shared sink, three lockers per working place seems the maximum.

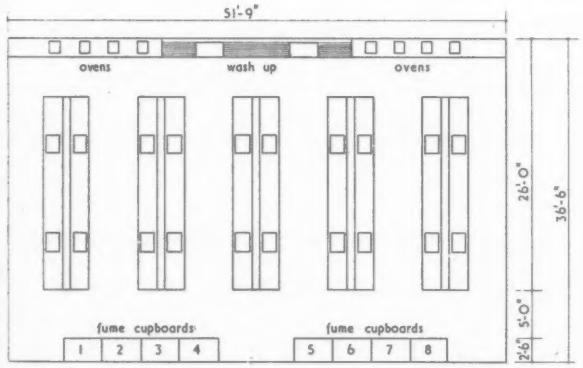
Individual storage for glassware such as burettes 30 in. long may be necessary, and can be arranged horizontally.

If the timetable and policy are such that an exceptionally large number of classes use the same laboratory it may not be possible to fit enough lockers of the usually acceptable size beneath each working place. The best remedy would then seem to be to reduce the amount of equipment held personally by the student, particularly the larger items and those not readily broken or stolen, and to keep them in open access cupboards elsewhere in the laboratory or to let the student draw them from store when he wants them. Probably all he then needs at his place is a drawer, properly compartmented, and there should be no difficulty in fitting enough of these. This of course raises the question whether such an arrangement

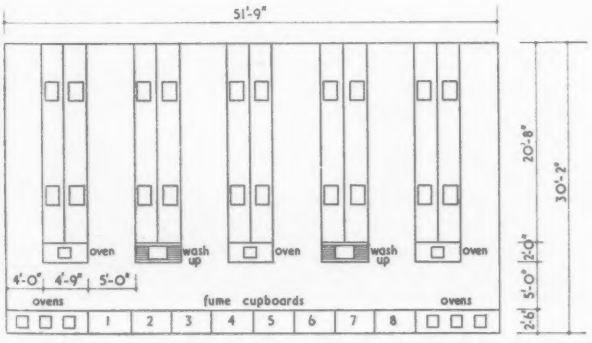


Three diagrammatic layouts relating bench lengths per working place to the standards of floor space per student suggested by the University Grants Committee.

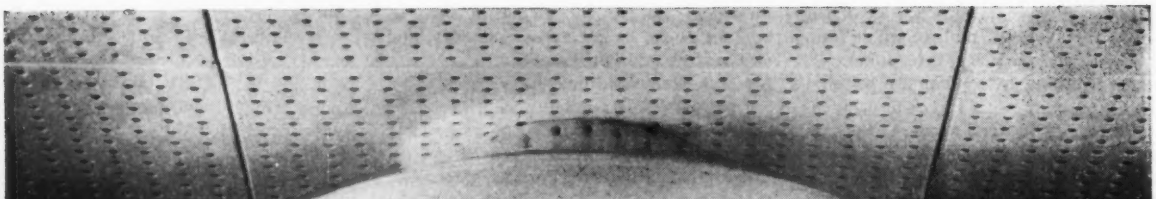
Diagram showing a 40-place laboratory with adjacent fume room, based on the minimum gangway spacings suggested and providing ovens and fume cupboards on the scale suggested for organic work. 20 ft. run is allocated to a central washup, with lengths of bench on both sides of it to accommodate eight ovens. The sashes in the fume room are at 4-ft. centres. With 5-ft. bench length per student (including half the sink), this diagram represents 47·2 sq. ft. per place including oven shelving, washup and fume room. At the standard of 60 sq. ft. per place suggested by UGC for third-year work, the island benches could be 30 ft. long, giving 7 ft. 6 in. bench length per student.



If the fume room is omitted and the sashes opened direct into the laboratory, the gangway serving them being increased to 5 ft., the laboratory is reduced to 43·2 sq. ft. per place at 5 ft. bench length per student. At 60 sq. ft. per place the bench length per student could be 8 ft. 2 in. But to achieve the lower UGC standard of 40 sq. ft. per place the bench length per student would have to be reduced to 4 ft. 4 in.



Peninsular layout of benches for a 40-place laboratory, with ovens and fume cupboards on the same scale as previous diagrams for organic work. This provides a bench length of 5 ft. 2 in. per student at the lower UGC standard of 40 sq. ft. per place, but gives no accessible wall space for side shelves of any sort.



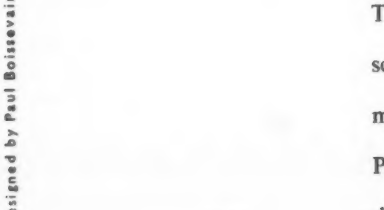
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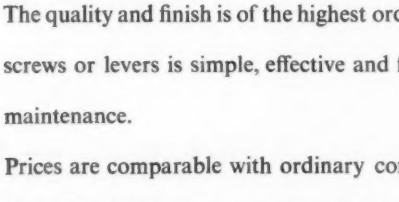
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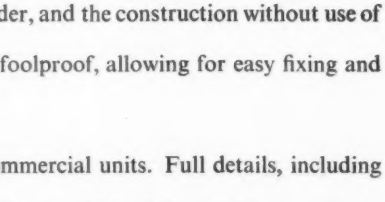
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would not be adequate in any case, for it has the advantage of making kneehole space possible, of giving easier access to services beneath the bench, and of a simpler and cheaper type of bench than is customary. But perhaps only micro methods would make it acceptable.

It is important that students should write up their notes during an experiment, and when space is limited it would be an advantage if they could do so without having to use the bench top. If a pullout flap is provided it should be at the end of the student's working bench length so that it offers the least obstruction, and should be remote from the sink. Unfortunately it is almost certain to be over somebody's drawer, but I know of no answer to this. It is possible, although more expensive, to construct the locker units independently of the bench, so that one can be drawn out to give a writing surface. This incidentally can give simple access to services, but I doubt whether it is worth doing unless the gangways can be more generous than they otherwise need to be.

Gangways

It is difficult to generalize about the spacing and lengths of benches and the desirable width of gangways because in the teaching laboratory we are not concerned only with the space required for working: the dimensions should also bear some relation to the frequency and density of the traffic which is to be expected. Safety is important: not only must the student be able to work without being jostled, but if he makes a mistake someone else may have to reach him quickly to put out the fire or to get him under a shower if he is covered with acid. So in stating any dimensions I do so with some diffidence.

I suggest that the minimum acceptable gangway space between the faces of parallel benches at which students are working back to back and through which others have to circulate is 5 ft. in the clear, and that 5 ft. 6 in. is not overgenerous if stools are to be used. With double sided benches and reagent shelves, which are likely to be at least 4 ft. 8 in. deep overall, the bench layout may therefore be at centres between 9 ft. 8 in. and 10 ft. 2 in. Only if the bench layout is of the peninsular type so that each gangway is a cul-de-sac do I feel that the dimension between the faces of the benches can be reduced to 4 ft. or 4 ft. 6 in., and then only when the peninsular bench length is short and the cul-de-sac is occupied by only two students.

The width of gangways at the ends of benches is more dangerous to assess in the abstract: I would think the minimum is 2 ft. 9 in. if it is purely for circulation, 4 ft. if someone may work on one side of it at a fume cupboard or washup sink, and 5 ft. if students may work on both sides of it. The last two dimensions will, of course, need to be increased if it is a main circulation route within the laboratory.

Benches should not be too long; if they are at close centres 15 ft. is probably the maximum desirable for peninsulars, and 20 ft. to 30 ft. if they are islands, but the reasonable length of islands will depend largely on their relation to other facilities.

Physical chemistry

The benches needed for physical chemistry differ from those for organic or inorganic work. A proportion may be of the fixed type, of much the same dimensions as those I have already described, but with more electrical outlets, including d.c.; troughs or drip cones, which leave the bench surface uninterrupted, will probably be preferred to sinks as there is not so much throwing away of solutions, and fewer or even no reagents will be wanted. But most of the laboratory will usually be equipped in a more flexible way, with tables 3 ft. high which can be placed adjacent to services to form working surfaces of various sizes as occasion demands, and which can be arranged to leave space for build-ups of various sorts. The pattern of services rather than of benches will therefore be the fixed element, and will usually take one or more of three forms: strips of services round the walls, island or peninsular strips, or more concentrated islands known as pedestals.

The students have no fixed places in the laboratory, and will move round from one experiment to another, often working in pairs. The experiment place is therefore the basis for the grouping of services, and as the possible arrangements are much more fluid than in a static laboratory it is more difficult to generalize about the scale on which they are likely to be wanted. The minimum per experiment place is probably two town gas, two water, two a.c., and one d.c. outlet, and on a linear arrangement this number might be provided for each 5 ft. run.

The design of the service strips can vary considerably, but a practical arrangement, particularly around the walls, is a shelf between 6 in. and 9 in. wide, 3 ft. from the floor, into which drip cones are fitted. Supply services can then either be run on the wall above, with outlets on the runs, or below the shelf with tees rising through it to the usual bench fittings. Wall space above such a shelf may well be provided with a channel or similar fixing system to which to bolt apparatus.

Grids will usually be required as well. These frameworks can either be mounted against a wall or can be double sided; they will probably want fairly dense servicing, including vacuum, with waste disposal either by trough or drip cones as low as is practicable so that when tall apparatus is clamped to the grid as much of it as possible can be within reach.

Individual storage for the student is not usually provided, but general storage will be wanted in the laboratory, and if there are not enough fixed benches to contain it and space is at a premium mobile cupboards that can be arranged under the tables are probably the best answer. Physical instruments not in use are unlikely to be kept in the laboratory itself, but in an adjoining store room or some central store.

The need to keep the atmosphere clean and dry to avoid the corrosion of instruments is an argument for not providing washup sinks in the laboratory itself. The amount to be washed is so small and might well be done in a side room.

Fume cupboards

In every way the fume cupboard seems to be the most recalcitrant and awkward thing to handle in laboratory planning. It is costly in itself and can have costly repercussions on the heating and ventilation of the laboratory; it consumes an inordinate quantity of air, occupies all the wall space, and thrusts its exhaust ducts through the floor above.

The fume cupboard normally extracts its air from the laboratory, which it ventilates in so doing, but at such a rate that in cold weather the air cannot be drawn into the laboratory through the windows because no reasonable heating system can keep pace with it. It has therefore become usual not to rely on natural ventilation to replenish the air extracted, but to introduce warmed inlet air into the laboratory. Not only is it important therefore to keep the number and size of the cupboards to a reasonable minimum and to see that the rate of exhaust is not in excess of what is really needed, but any other way we can find of avoiding this gross rate of airchange in cold weather might make considerable financial savings.

The obvious solution of introducing cold air direct into the cupboard through ducts only works if the sashes are closed, which is rarely practicable. A possible alternative would seem to be to introduce air into the cupboard under pressure in the form of an air curtain at the face of the sash, and it is probable that this would be cheaper than conventional inlet air to the laboratory itself. But whether it has ever been made to work I do not know.

A simpler alternative, although using more floor space and probably not immediately attractive to chemists, might be to face the fume cupboards into a separate and compact room taking the form of a corridor alongside the laboratory and partitioned off from it by the cupboards, which could have glazed backs so that observation from the laboratory was possible. Doors for access at fairly frequent intervals would be necessary, and one or two sashes opening into the laboratory instead of the fume room could probably deal with the few emergencies likely to arise. With such an arrangement the fume room might have its own local inlet air plant with a direct response to the fume extract fans. And in hot weather the fume cupboards might ventilate the laboratory by drawing fresh air across it from its windows and into the fume room through adjustable vents near the ceiling.

The width of sash demanded for fume cupboards seems to vary widely, but if the sashes are in ranges and are not divided into compartments, I would suggest that 4 ft. is a reasonable dimension and that at this width it is possible for two students to use the same sash on some occasions. On the basis of a 4 ft. sash, organic chemistry

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might need one to every four or five students; inorganic, one to eight; and physical chemistry, one to 16. No doubt both the dimension and the numbers will be strongly disputed. I hesitate to mention a rate of exhaust: if I say 35 linear feet per minute with the sash fully open at 3 ft., I do so in the knowledge that some people ask for 80. I think it is important to question how frequently the cupboard really has to be used with the sash fully open and to remember that if it is only open 18 in. the rate of exhaust is doubled.

The depth needed for fume cupboards would seem to be between 2 ft. and 2 ft. 6 in. The services wanted in each sash will probably be about three cold water outlets over a drip cup, two gas, one 13 amp. electricity, and one steam, this last perhaps occurring only in every other cupboard. Electricity should be outside the sash: gas can be outside, which simplifies the controls although the flexible tubing passing into the sash tends to get in the way. Services within the cupboard seem best placed at the sides, behind the mullions and within easy reach of the face, and opinion seems to be that the convenience of remote controls justifies their expense and maintenance.

Balance rooms

Because the atmosphere of organic and inorganic laboratories is corrosive, their balances have to be in separate rooms, although some less delicate machines for rough weighing may be kept in the laboratory itself. In physical chemistry it is usually unnecessary to isolate the balances because the atmosphere is much cleaner.

The number of students who can share the same balance depends partly on the type used. With the familiar beam balance a weighing operation may take about five or ten minutes, but the more recent single pan and aperiodic balances can reduce the weighing time to about a third. Although the time occupied in weighing may be short it tends to occur at peak periods, particularly during examinations: the proportion of balances to students is therefore fairly high, and the number of students per beam balance that might be considered reasonable seems to be about two or three for organic work, five or six for inorganic, and about ten for physical chemistry.

Balance shelves need to be at least 1 ft. 10 in. deep, with from 2 ft. 6 in. to 3 ft. frontage per balance. Weighing must be done seated, and if the planning is tight it occurs to me that it might be useful to have the stools fixed to the floor so that they cannot stray and obstruct gangways. A peninsular layout probably offers most seclusion in a large balance room, but is not always very economic of space.

Easy access from the laboratory to the balance room is important, preferably without crossing corridors or rounding blind corners, for the student may be carrying a preparation representing some hours work. For the same reason the doors should be well glazed. They should be lightly sprung and prevented from banging: an "in" and "out" door may be useful in some circumstances, but I am not altogether sure that laboratory discipline will be such that they are so used.

Balance rooms can well do without natural light. Artificial light will be necessary in any case much of the time, and exposure to the sun is a nuisance both visually and in heating up the room and affecting the accuracy of the machines. So if natural light is convenient for other reasons it should be obtained from a sunless exposure.

Washups

In both organic and inorganic laboratories there is a good deal of routine washing up to be done by the students, principally of glassware. It occurs throughout the period, and tends to take longer in organic work because it is dirtier. As it is the only activity for which hot water is required in the laboratory it is economical to localize it as much as possible and not to have it at every bench, but a centralized washup is unlikely to be suitable if it involves much walking to and fro. As the washup sinks will be used by more than one student simultaneously they want to be fairly generous in size and to have drainers at both ends. Drying of test tubes, flasks and so on is done on inclined pegs, and other rack space for awkward items is an advantage. The number and size of the sinks depends very much on the plan arrangement: perhaps one sink about 36 in. × 18 in. to fifteen or twenty students is adequate if the cold water sink at the student's bench is large enough for him to do some of the minor washing up at his place, and is equipped with a rack for drying.

Ancillary space

In addition to fume cupboards, balance rooms, washups and stores, the teaching laboratory needs certain other minor ancillary space either in it or closely associated with it. And as it can so easily be squeezed out it may be mentioned that it can also do with a little bench space that is not allocated to anything in particular.

Except for shelving for rough balances, which are unlikely to be numerous, the principal space needed will be for ovens. These are small electric affairs that can stand on a shelf at bench height; the shelf needs to be about 20 in. deep and the ovens can be set out at about 30 in. centres. They may be provided on a scale of one to about six students for inorganic work, and rather less for organic and physical chemistry. There seems to be little against having them in the laboratory, except that they give off some heat, but they are frequently kept in a special room, in which case it may be possible for the room to be shared by more than one laboratory. Direct access from the laboratory to oven room will probably be considered essential however.

A little wall space will be needed for an electric still, or for an ion exchange unit (the former will require a drain for its cooling water) together with a storage vessel for distilled or demineralized water.

Adjacent to the physical chemistry laboratory, but not necessarily opening direct off it, a room may be needed for work with physical apparatus too large or too valuable to be kept in the laboratory, and another for instruments requiring dark room conditions.

Stores and preparation rooms

Whatever the arrangement of central chemical and apparatus storage in the building, the laboratories themselves will be serviced from sub-stores and preparation rooms, of which there will have to be at least one on each laboratory floor. If they are on different floor levels from the central store lift, access will be essential, preferably direct, but this is obviously not always possible.

Their function is to hold a stock of chemicals and apparatus for the laboratories they serve, to prepare and maintain the solutions available in the bottles at the bench and on the side shelves, which will be replenished from a trolley wheeled round the laboratory, and to prepare other solutions wanted for specific teaching purposes such as qualitative analysis. They will issue material to students across the counter, or in some cases via the demonstrator. In addition to storage space they will need plenty of bench space with a sink and the usual services, a fume cupboard, and a separate washup sink.

The preparation room should for preference be adjoining the store and should open direct, by hatch and door, into the laboratories it serves. But direct access to the laboratories may be impossible, in which case I think it will be regarded as essential that it should be close to them and that students should be able to reach it from their own laboratory without passing through another. They will want casual access to the issue counter at any time during their laboratory period, but there is likely to be more pressure at the beginning when everybody wants to draw material at the same time and space may have to be found for queueing.

Finally, although I have taken far too much for granted in this paper, I would like to plead with architects and their clients to beware of doing so. If we are to build sensibly as well as economically there is a point beyond which it is folly to reduce space, just as there is a danger in setting standards of square feet per this or that and of feeling satisfied if we can work within them. A rational and balanced use of space is important, and such standards are useful yardsticks, but the real breakthrough is only likely to occur if we can re-think the problem. I am all too aware that my paper does not do this. It demands very close and sympathetic collaboration between architect and client, a collaboration in which every assumption is given the most rigorous scrutiny and in which the client as much as the architect can act creatively.

* Drip cone: a hole in a bench top in the form of an inverted cone with a waste pipe at the bottom.

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Brian Grant describes a plastic tent for covering buildings under construction, a catalogue of electrical switchgear, a shower cubicle, sound insulation for offices and a radiant heater in a shop canopy.

Building in the wet

Tents of various kinds have been used in the past in an attempt to allow building work to continue in the rain, one of the first efforts being made, I believe, by MOW at the Thatched Barn soon after the end of the war. Now a plastics tent is being used on the LCC Warnham Court Estate near Horsham, and the builder estimates that he has already saved £60 in wet time against a cost of £88 for the canopy, which is still usable on further schemes. The material is heavy gauge (0·005-in.) Bexthene, and it is anchored by heavy hardboard strips attached to the edges. This is claimed to be adequate against winds of gale force but I have seen hay ricks here and there protected with plastic instead of thatch, and although the film used may well be thinner and less firmly anchored I notice that most farmers take the precaution of adding an open mesh net over the whole thing. Even if this were to cut down the working light a certain amount there should still be enough for working. The photograph shows the canopy without the end enclosure pieces. (*H. Fine & Son Ltd., Vale Royal, York Way, Kings Cross, London, N.*7)

Electrical switchgear

A complete catalogue (No. 158/59) from Sanders lists a full range of electrical switchgear, fuse boxes and other equipment, and it is interesting to note that in a number of instances price reductions have been made. There are also some new models, including a remarkably clean range of Sandaline fuseboards and an almost equally good flush type Sandasteel range. I am also glad to see a rubber plug to BS 1363, as I had one of the original round pin types as long ago as 1937, and it survived an astonishing amount of ill treatment. (*Wm. Sanders & Co. (Wednesbury) Ltd., Falcon Electrical Works, Wednesbury, Staffs.*)

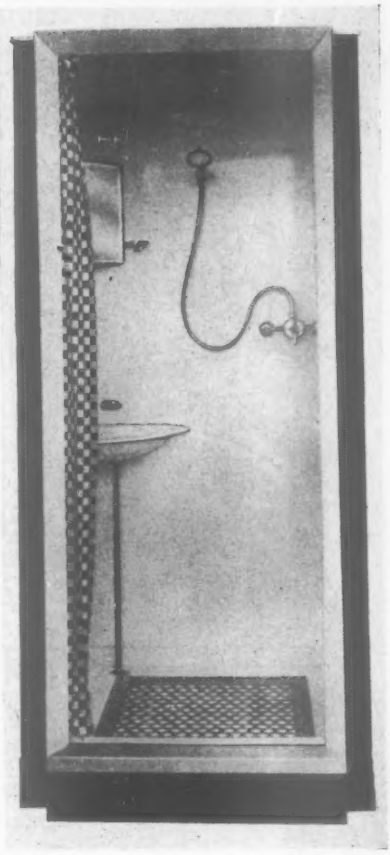
Shower cubicle unit

Allied Ironfounders have just announced the Leisure shower cubicle, a self contained unit which sells at £58 17s. 6d. Finished in black and white vitreous enamel on pressed steel, the unit is 36 in. sq. by 77 in. internally, and only needs connection to hot and cold supplies, and to waste. A small wash basin is installed in one corner and there is a small glazed panel in the ceiling for extra light when the curtain is drawn.

Another new fitting is a double sink with a draining board which slides from one side to the other, or can be removed altogether. The standard unit measures 42 by 21 in. and the two bowls are 10 and 6 in. deep. When a large amount of washing up or laundry has to be done both bowls are used and the draining board slid from side to side, or (a deplorable but tempting suggestion) dirty crockery can be left to soak and hidden by the draining board. This unit seems to have most of the advantages of double sinks and draining boards without their excessive length. Price, with cabinet, is about £30. The shower unit is distributed by *Allied Ironfounders Ltd.*, 28 *Brook St., London, W.*1, and the sink by *Leisure Kitchen Equipment Ltd., Long Eaton, Nottingham.*

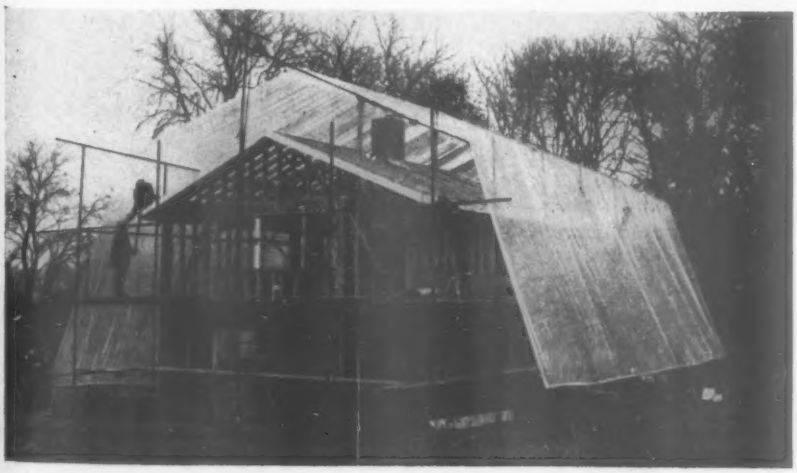
Silencing office machinery

Panels of sound absorbent round telephones and other sources of noise are by no means new, and the idea has now been extended to the insulation of the larger types of electrically driven office accounting and other machines. The latest effort is the Hushbox, a cabinet which can be made in almost any dimensions, and which is lined with 2 in. of sound absorbent round three sides and the top of any machine. In most instances the emitted sound is reduced by about 10 db., and insulating pads are also supplied for the feet of the machines. (*D. Matthews & Sons Ltd., Dale St., Liverpool* 2.)



The Leisure shower cubicle.

The LCC house on the Warnham Court Estate under construction, protected from the weather by Bexthene sheets.

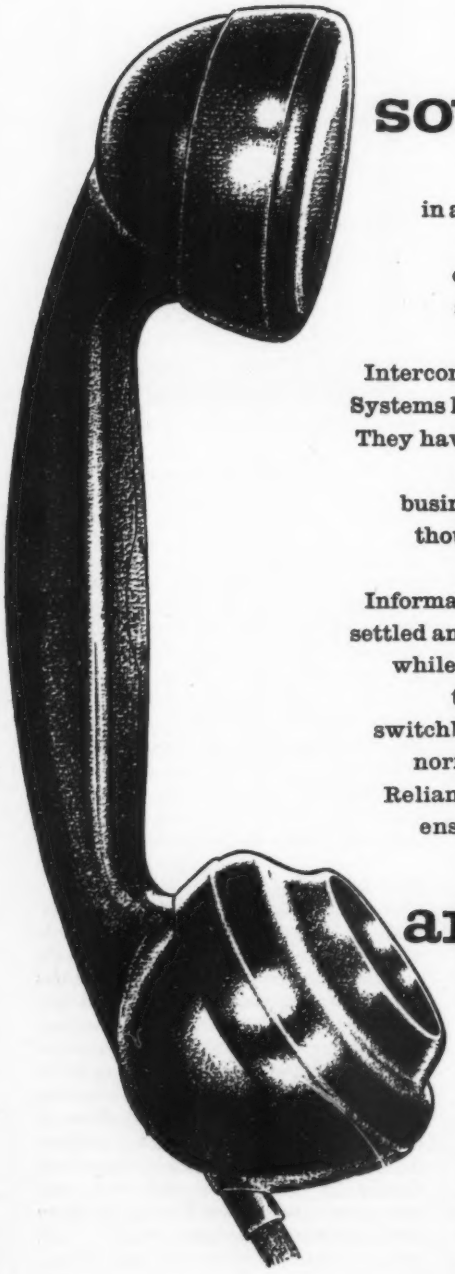


Space heating

Metrovick have recently installed a series of 3 kW. radiant space heaters in the canopy of a shop in Liverpool. The heaters consist of anodised aluminium reflectors housing tubular elements which operate at red heat and provide radiant heat for the shoppers below. Shoppers can thus see the whole ground floor display in reasonable comfort, and a further advantage is that the difference between inside and outside temperatures is reduced and condensation on the windows is largely avoided. The system is also recommended for loading bays and other open areas where conventional heating would be very expensive. (*Metropolitan-Vickers Electrical Co. Ltd., Trafford Park, Manchester,* 17.)



The Reliance Loudspeaking Automatic Master Station especially designed for use by the busy executive.

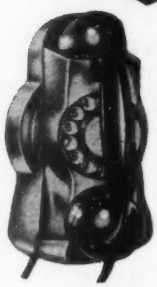


sound sense...

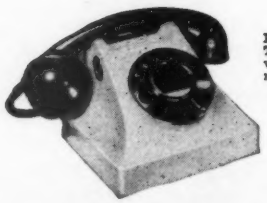
in any type of organisation means the fullest co-operation between staff and the co-ordination of effort. The Reliance Intercommunication Telephone Systems help to provide just that. They have long been established as an essential factor in business efficiency and many thousands of daily users are evidence of their value. Information is obtained, queries settled and even conferences held while all concerned remain at their desks—and the P.O. switchboard is free to deal with normal traffic. The choice of Reliance reflects sound sense—ensuring reliable efficiency



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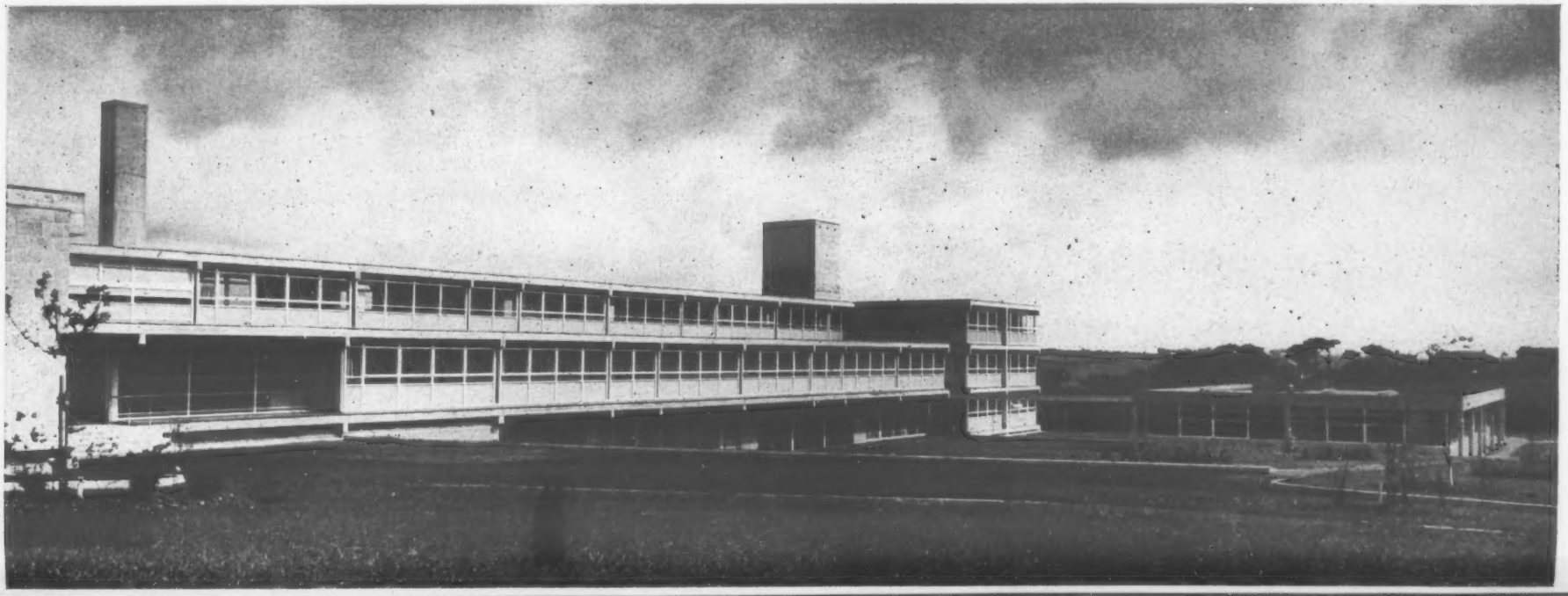
building illustrated

SECONDARY MODERN SCHOOL

TRESCOBEAS SECONDARY MODERN SCHOOL at FALMOUTH, CORNWALL; designed by E. D. LYONS, L. ISRAEL and T. B. H. ELLIS; assistant architect A. T. PARK; quantity surveyors MERCER and MILLER; consultants (structural) HAJNAL and MYERS; (heating and electrical) J. STINTON-JONES and PARTNERS

In its comment on the main elevations of the six entries for the limited competition which has resulted in this four-form entry secondary modern school, the JOURNAL asked this question: " Do any of these elevations belong to the Cornish coast? " (AJ, March 25, 1954). Perhaps the JOURNAL's question served some purpose, for the elevations of the completed building are hardly comparable with those originally published. Even so the question is still valid and the answer, as the JOURNAL sees it, is given in the appraisal overleaf. Although the final cost exceeds the competition gross figure of £184,000 by £9,165, the net cost, on a very difficult site, has been successfully kept down to 67s. 8¾d. per sq. ft.

Viewpoint 1: the classroom block from the south-west.

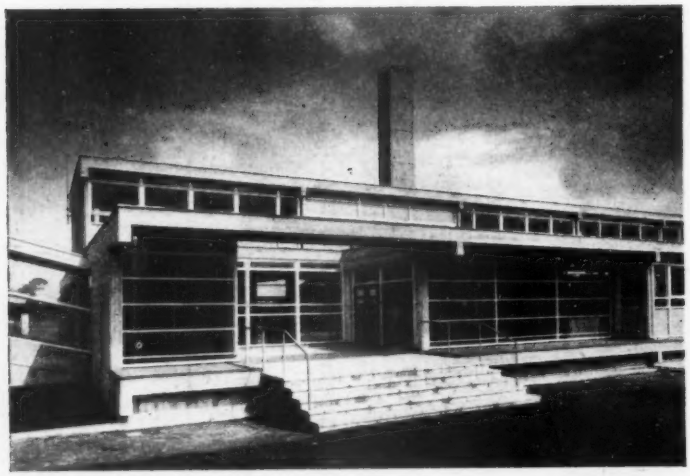


building illustrated

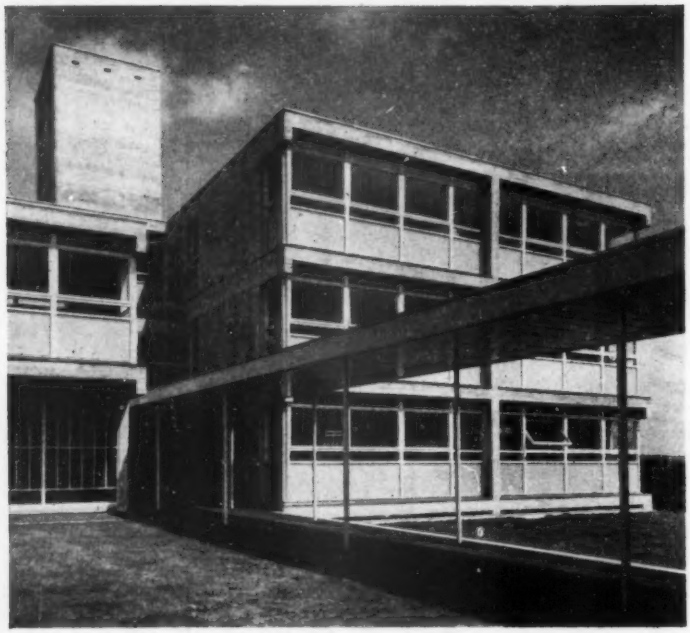
APPRAISAL: The JOURNAL'S answer to the question set out in the introduction is "Yes, this building does belong to the Cornish coast." It belongs not in terms of a Cornish vernacular, but in terms of its fitness within its environment.

It is true that any one of a dozen prefabrication systems could have been used for this school and have satisfactorily taken care of any climatic conditions or lack of "usual" building materials, but it is doubtful if any such building could have "belonged" in the way that the present school succeeds in doing. This is not a *cri de coeur* for gazebos in the pixie's dell nor is it a denigration of standardisation and the production building, but simply a consideration of human values in architecture.

What quality is it that makes this building belong where another might have looked uncomfortable and incongruous? Undoubtedly one of the main contributions is the large-scale use of local materials. But the building does not compromise itself with pastiche; the materials are used because they are there and because they are usable. The concrete, the blockwork and the reconstructed stone are grey with China clay aggregate. The structure, although difficult to comprehend, is virile, compatible with the bold topography, the storms and the massive strength and simplicity of the disused tin mines. Siting is always important but in countryside like this it becomes vital. No mistake has been made here; the building follows the contours down the hill, without attempting to dominate the site and yet because of its strength not in turn dominated by its surroundings. This tough quality is however carried right through—inside the building; presumably to be justified in terms of honesty of materials and structural form. But here the refreshing revolt against South Bank effeteism and the contemporary style irritates and becomes a little silly, because this building *is* a school and classrooms call for something more than massive rough concrete and dirty exposed concrete blockwork. Problems of noise and dirt appear to be relegated to a secondary place and time and time again inside the building the decision as to the use and quality of materials raises the doubt that this is a monument to an aesthetic idea, a building built by and for architects, but hardly for children.



The classroom block starts off with the finished floor level about 3 ft. above existing ground level. At this point, where the block joins the assembly hall (viewpoint 2, left), the main entrance is situated. The little entrance patio is a pleasant way of allowing the visitor to adjust himself to the inside of the building before he actually enters, although with his attention attracted toward the inside he will probably not notice, but may soon be painfully aware, of the tiny step up to the entrance doors. The horizontally banded windows are of metal, similar to those used for other non-teaching spaces. The classrooms have softwood framed panels, floor to ceiling, with mullions at 6-ft. centres. Opposite the columns, which are set in from the external wall, there is a tall thin metal window with an opaque panel, to accommodate the internal partitions.

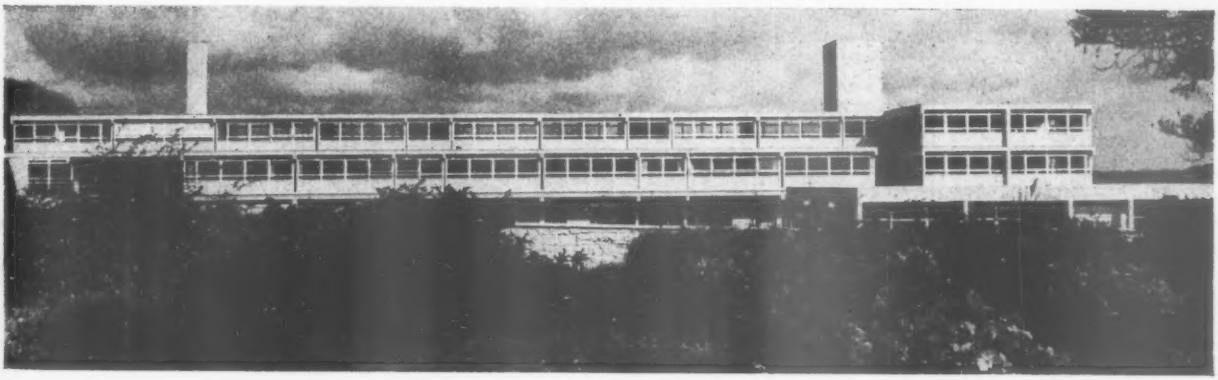


Viewpoint 3, left: this covered way links the noisy-craft block with the other practical rooms, which are all concentrated at the east end of the classroom block. The little balcony at second floor level in the re-entrant "well" is for access to the tank-room over. This photograph was taken between 11 a.m. and noon, and strong sunlight is flooding into the classrooms. In their report on their competition entry the architects stated that "the orientation of the school avoids the intense sun from the south and west." It is probable that the sunlight will continue to shine on this elevation until about 4 p.m. There are no venetian blinds, and the horizontally pivoted windows make it difficult to fix any.

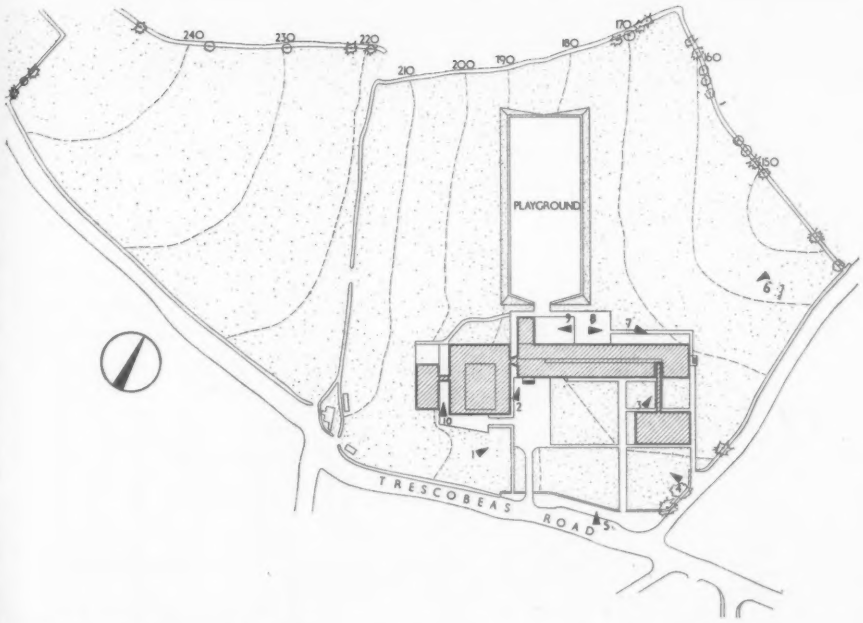
Site pla



Above, viewpoint 4, from the south-east, looking towards the gym and assembly hall which are at the top end of the site.

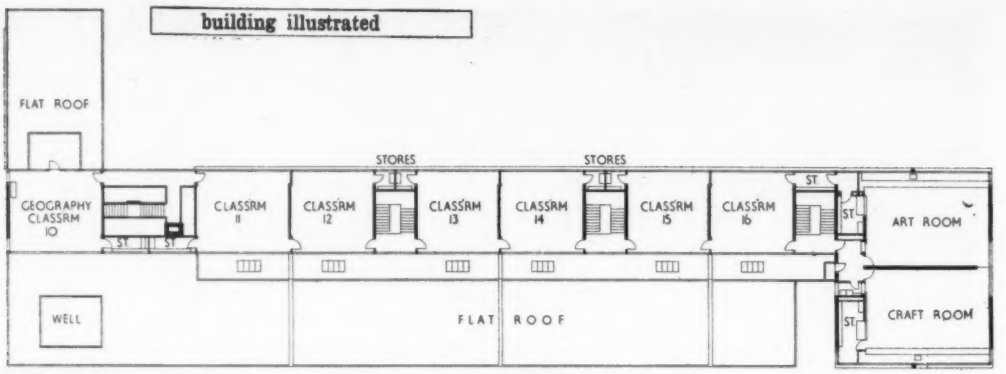


Viewpoint 5, below, the south side of the classroom block from Trescobeas Road.

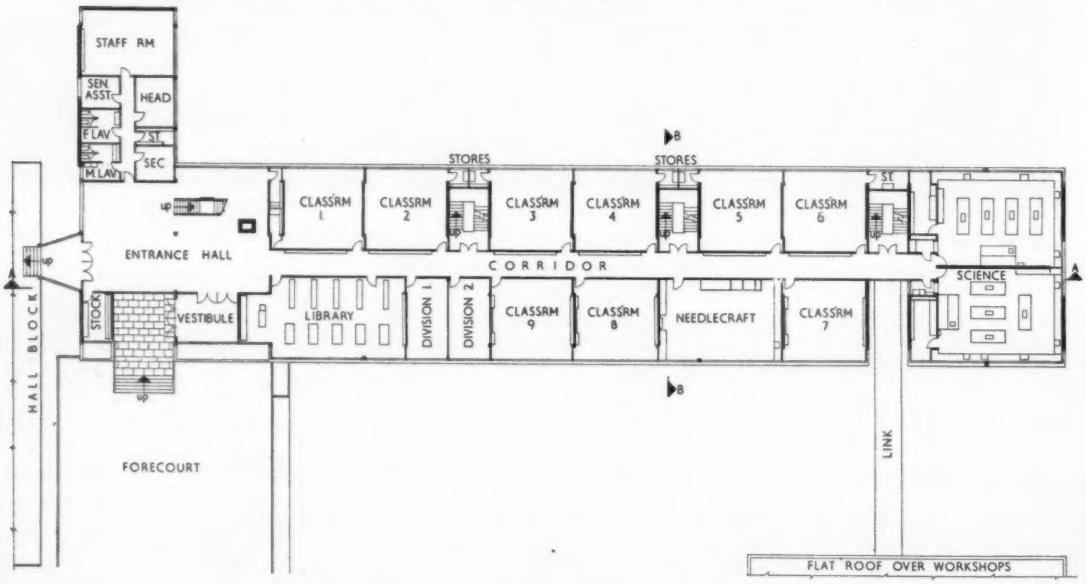


Site plan with photographic viewpoints

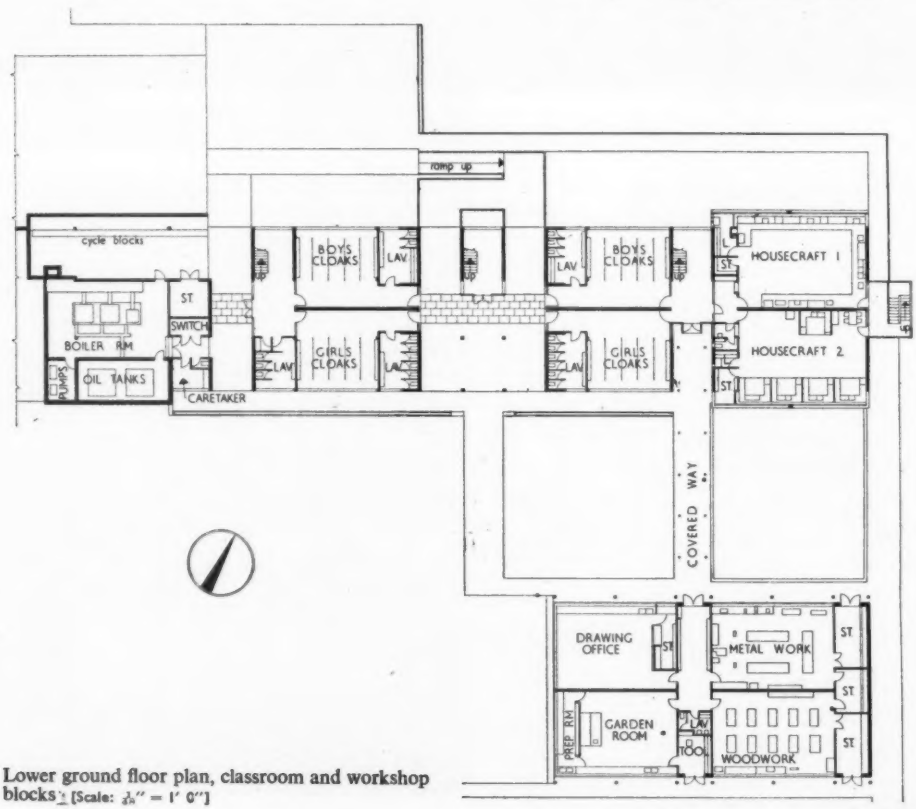
building illustrated



First floor plan



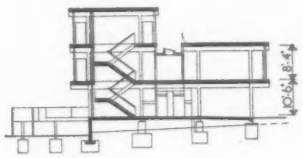
Upper ground floor plan



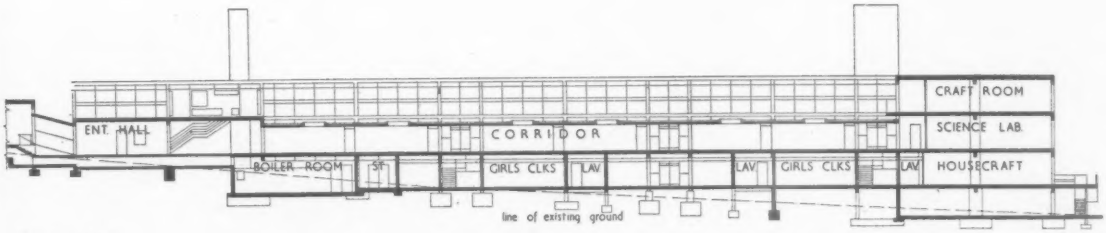
Lower ground floor plan, classroom and workshop blocks [Scale: $\frac{1}{32}$" = 1' 0"]



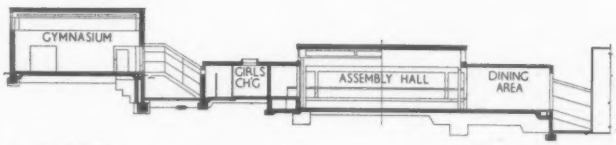
Viewpoint 6: the long north elevation of the classroom block is always in shadow, but the views to the north are splendid and all the teaching rooms have some windows which allow sunlight from the south but which are primarily for cross-ventilation. The ramp in the centre of the long elevation is for cycle access to one of the open cycle stores beneath the building. The in-situ *concrete stair on the end of the block is private to the two housecraft rooms and gives access to the drying area and the school gardening plots. The open area beneath the end three storeys is further open cycle storage space.*



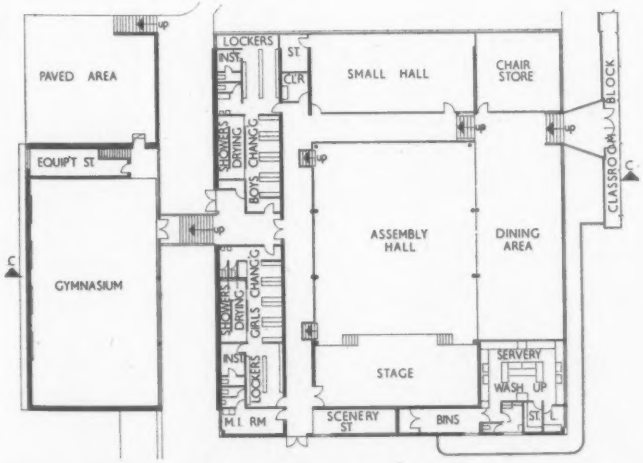
Section B-B



Section A-A



Section C-C



Ground floor plan, assembly hall and gymnasium blocks [Scale: $\frac{1}{16}$" = 1' 0"]

analysis

CLIENT'S REQUIREMENTS

This school is the result of a limited competition initiated by the Cornwall County Council in September, 1953, and assessed by Howard V. Lobb. A four-form entry secondary modern school was required for 600 children with a high proportion of practical accommodation with a bias towards engineering and agriculture.

The competition conditions also required (*a*) a building not in excess of three storeys, (*b*) that the assembly hall be designed for public as well as school use, (*c*) that the gymnasium should supplement the assembly hall and (*d*) that competitors should use, wherever possible externally, local materials.

The gross cost limit was set at £184,000.

SITE

Roughly triangular, with the apex pointing west and the base line east, the site slopes steeply from the 245 ft. contour line at the west to the 155 ft. contour line in the east over a distance of approximately 1,350 ft.

The climate is warm and humid and the prevailing winds, at times very strong, are from the south-west, from which direction there are also sustained periods of strong sunlight.

The area about the site is largely farming land with traces of new and extending development. There are excellent views to the north. Subsoil consists of fine to medium clay shale at an average depth of 5 ft.

PLANNING AIMS

The school is broken down into three basic elements: classroom block, assembly hall and gymnasium block, and noisy-craft block.

The school steps down the site across the contours so that the classroom block is parallel to the direction of the prevailing winds and thus, it is hoped, will avoid damage from gales and also to a certain extent be free from strong south and west sunlight. The assembly hall is placed at the top or east end of the classroom block to act as a shield to the other buildings. At the junction of these two blocks—a focal point—the entrance is placed.

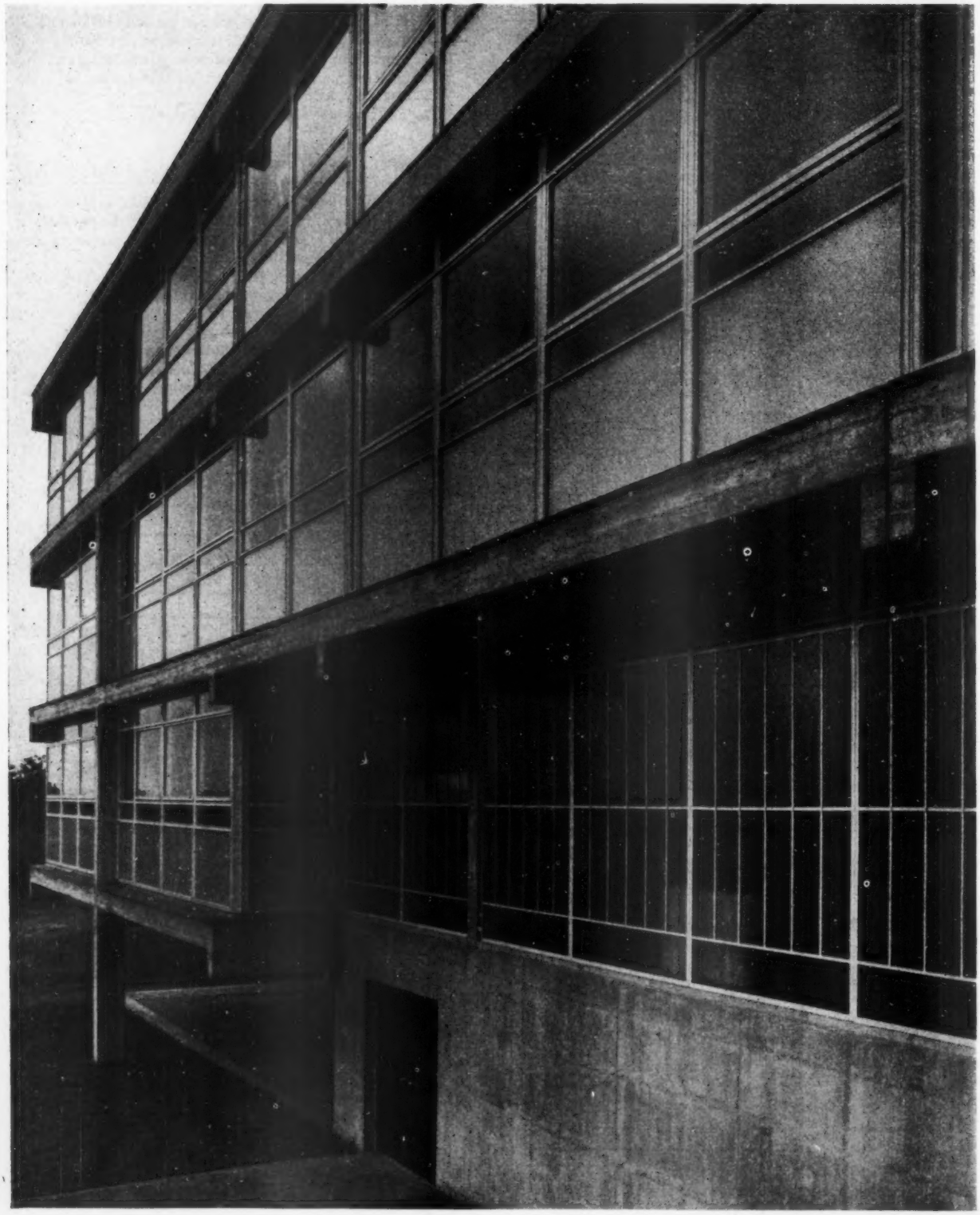
To overcome the humid warmth of the climate, cross-ventilation is provided in all teaching rooms.

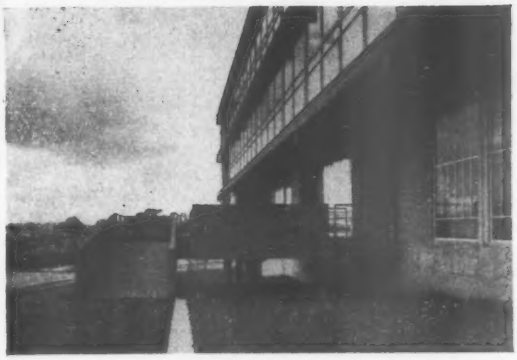
SUMMARY

Ground floor area: 33,598 sq. ft.
Total floor area: 48,050 sq. ft.
Tender price of foundations, superstructure, installations and finishes: £174,753 13s 4d.
Final contract price: £162,713 11s 1d.
Tender price for external works (including drainage): £31,303 5s 7d.
Final contract price: £30,451 17s 7d.
Total contract price: £193,165 8s 8d.

building illustrated

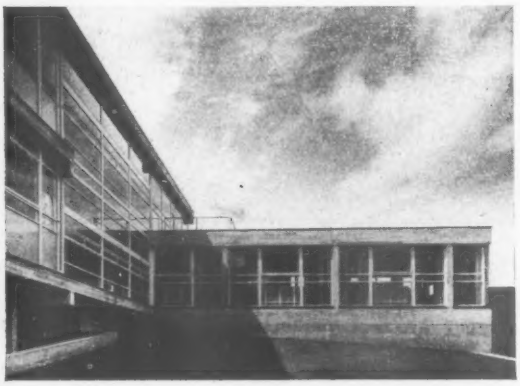
Viewpoint 7, the north elevation of the classroom block from the ramp. Normally the structure consists of floor slabs spanning parallel with the length of the building on to a beam and column frame which spans across the building. The columns are set in some 5 ft. from the external wall (which does not matter internally as they always occur in a partition), and the structural beams cantilever out to be exposed on the elevation giving the building its characteristic appearance. At the end of the block where the larger craft rooms are situated the central spine beam has to be supported on external columns to avoid a column in the workspace. The vertically banded metal windows light the cloak spaces.



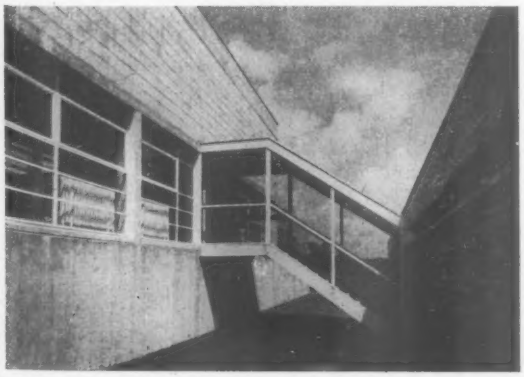


Viewpoint 8, above, the cycle ramp to lower ground floor level on the north side of the classroom block.

The staff rooms are in a small self-contained block, viewpoint 9, below, projecting north from the classroom wing. The proportion of the parts and the junctions of materials have been most carefully and successfully organized throughout and yet they derive from the plan and from structural considerations. The component parts are not forced and all have some meaning. The large area of glazing on the left of the photograph where



the first floor line stops lights the double-height space around the free-standing staircase in the entrance hall. Access to the gymnasium from the changing rooms is through this light glazed link, viewpoint 10 (below). The difference between the two floor levels is 7 ft. Below the gym floor level is a reinforced concrete retaining wall, and above the windows are smooth light grey concrete blocks in cavity construction. The cladding to the changing rooms on the right is granite reconstructed stone blocks, the height of the courses roughly equivalent to those of brickwork.



analysis

cost per sq. ft.	s	d
Preliminaries and insurances	1	1¼
Contingencies	1	5½

Work below ground floor level 8 7

Bases to the structural frame are in mass concrete throughout, bottoms usually 5 ft. below existing ground level and often monolithic with retaining walls.

The gym and assembly hall are terraced into the hillside and therefore on cut both having retaining walls to their east side, approx. 9 ft. and 7 ft. respectively, which return along the north and south sides with stepped footings to take the slope of the ground. These retaining walls are in r.c. and are untanked. Floor slabs are 5-in. r.c. with a d.p.m. on blinding beneath the slab. On the West side of the buildings the concrete block cladding is carried on shallow concrete strip footings.

For the classroom block the ground floor level coincided with existing ground level at the western edge. The block starts at two stories and with a constant roof level finishes as four stories with a lower ground floor of boiler house and cloakrooms and an open sub-lower ground floor at the east end. This stepping down entails further retaining walls, first to the boiler house (where asphalt tanking is used) and again for the sub-lower ground floor on the west and south side. These retaining walls are 11 ft. 6 in. and 9 ft. respectively. Floor slabs are mostly on fill and are suspended 10 in. deep pre-cast r.c. planks. There is a d.p.m. under areas having a wood block floor finish. Heating and service trenches below floor slabs are formed with 9-in. brick walls and concrete bases; they are untanked and the floors have been laid to falls. Practical block has mass concrete bases for the frame and strip footings for the block walls.

STRUCTURAL ELEMENTS

Frame or load-bearing element 5 3¼

Floor spans run parallel to the direction of the building, therefore the structural frame spans across and may be likened to a series of double Portal frames at 24-ft. centres for classrooms and 12-ft. centres for staircases with beams cantilevering past the columns to form the central corridor and projecting on to the elevation as downstand beams. Pairs of columns are 15 ft. apart and 16 ft. 9 in. apart in the centre, the cantilevers from the columns to the elevation are 5 ft.

Assembly hall and gym spans are 35 ft. and 44 ft. 6 in. and pre-stressed, pre-cast concrete beams, 2 ft. 6 in. and 1 ft. 6 in. deep respectively at 18 ft. 6 in. centres have been used.

Concrete throughout the job is all exposed face using China clay sand and band sawn timber formwork.

External walls 2 3½

Concrete blocks of China clay sand and granite aggregate used as cavity construction for gym class and practical blocks. There are some small areas of rough finished reconstructed Cornish granite blocks.

Ratio: $\frac{\text{solid walls}}{\text{floor area}} = \frac{0{\cdot}237}{1}$

building illustrated



The entrance hall, above, is a pleasant generous space. From it leads the link up to the assembly hall (centre of photograph), the entrance to the staff suite and the main corridor giving access to the classrooms and staircases.



The geography room, left, is above the entrance hall and the door in the window wall leads on to the roof of the staff block which thus provides a small outside area for practical work. Through the window can be seen the splendid views to the north. The horizontally pivoting windows can just be opened when the curtain is drawn to darken the room during some lessons.



The free-standing staircase leads up to the geography room and one classroom. This staircase with the landings above it and the chimney stack to one side, above, is a virtuoso performance in rough tough concrete. It is brutally, refreshingly honest but it is, alas, beginning to look grimy and greasy from contact with hot little hands.

Below, one of the three staircases in the classroom block. The width of the flight is 4 ft. and the total rise is 21 ft. Walls are of concrete blockwork, and the in-situ concrete stairs are finished with granolithic. (Granolithic in Cornwall is different from that usually encountered; it is better looking, a sort of low-quality terrazzo.) Balusters are of mild steel with a black polished hardwood handrail.



	s	d	
Windows	5	9	
Floor to ceiling window panels are softwood framed and painted with mullions usually at 6-ft. centres. Mullions are coupled together and strengthened by a concealed galvanised Detroit bar section. Large opening lights are in softwood and are horizontally pivoted as are also the hoppers which are out of standard metal sections. Under cill panel is a sandwich construction; ¼-in. rough cast glass, ¼-in. air space, ⅜-in. asbestos cement fibre board finished with two coats chlorinated rubber paint, a small cavity and a further layer of asbestos cement fibre board, U value=0·19. Columns are set 5 ft. back from the elevations but opposite each there is a floor to ceiling infill of cast glass in a metal frame to take internal partitions.			
Ratio: $\frac{\text{windows}}{\text{floor area}} = \frac{0{\cdot}392}{1}$			
External doors		2¼	
Painted softwood, fully glazed. 9 pairs double, 8 single. 4 double framed ledged braced and boarded painted softwood.			
Ratio: $\frac{\text{doors}}{\text{floor area}} = \frac{0{\cdot}017}{1}$			
Upper floors	5	3¾	
Precast r.c. beams, average span, 25 ft. Area, 16,595 sq. ft.			
Staircases		10½	
5 staircases, r.c. with grano finish, M.S. balusters. Small flights in the assembly hall with open timber treads. Width, 4 ft. Total rise, 21 ft.			
Roof construction	3	7¾	
Plywood decking, 16,589 sq. ft. 19,027 sq. ft. of precast concrete beams similar to upper floors.			
Rooflights		3¼	
Square domelights and ventilators. 19 lights, total area, 295 sq. ft.			
Glazing	1	2¼	
32-oz. clear glass and ⅛-in. cast plate. ¼-in. polished plate. ¼-in. g.w.p.p. ¼-in. g.w. cast.			
Total of structural elements:	24s	9½d	

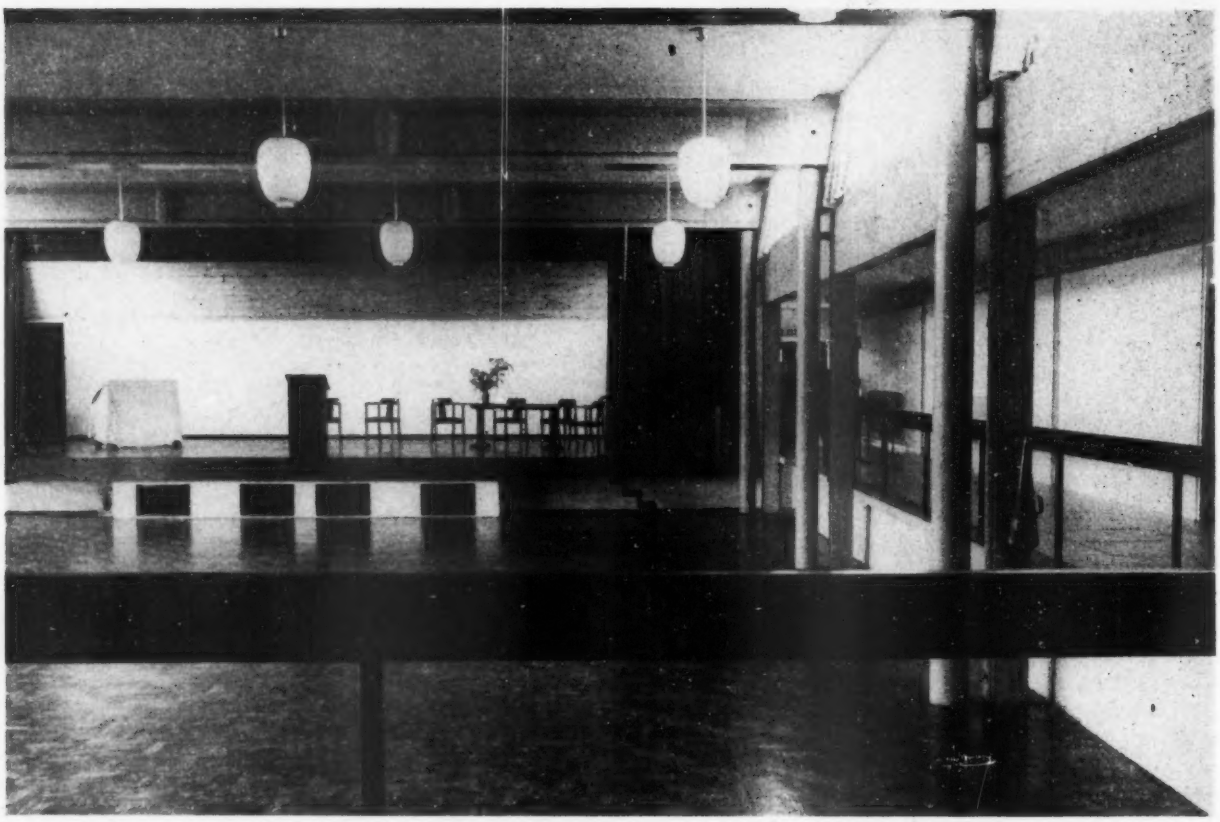
PARTITIONS AND FITTINGS

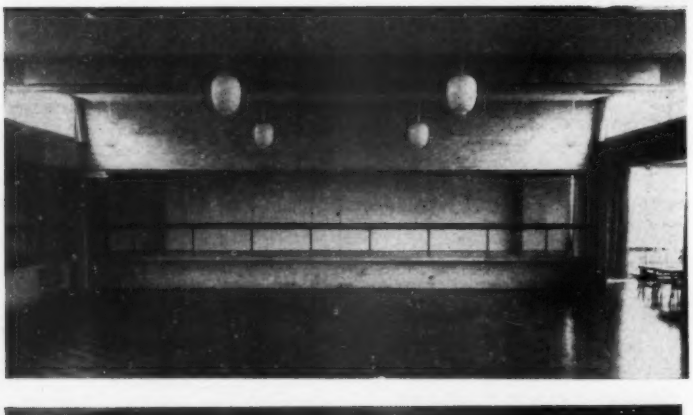
Internal partitions	1	9

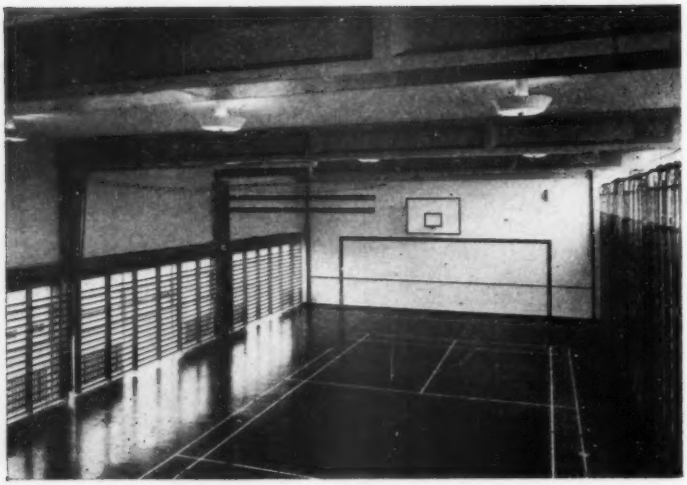
Type of partition	*Area of each type*
Precast concrete block	16,695 sq. ft.
Flush hardwood veneered	1,572 sq. ft.
Terrazzo w.c. partitions	782 sq. ft.
Sliding folding partitions	720 sq. ft.

Screens		4½
Glazed painted softwood		

building illustrated

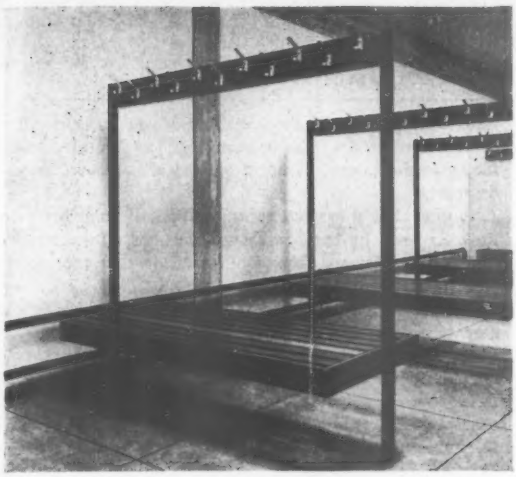






The assembly hall, above, has prestressed beams at 18-ft centres spanning 44 ft. 6 in. The only colour, other than that of the grey-painted concrete and the natural materials, is from the velvet stage curtains which are a brilliant red. Apart from these and smaller window curtains there is no material with acoustic absorbent properties present whatsoever. Around the assembly hall, the dining area, small hall, stage, side corridor and changing rooms all have the normal reinforced concrete, beam and column structure. The assembly hall proper has prestressed precast concrete beams and columns. The difference between the two types of concrete structure is emphasized on the columns by the round smooth painted surface of the precast work and the rough face of the in-situ work. These columns go straight through the wood block floor without a skirting and are becoming stained around the base with floor polish. Centre left, another view of the assembly hall looking away from the stage. There is a smaller hall opposite the stage, and when the sliding folding partitions separating the two rooms are opened the total space, including the dining area, is vast.

The construction of the gym (bottom left) is similar to that of the assembly hall, but with a smaller span. The room is airy and well lit. Above the apparatus store there is a small gallery, from which this photograph was taken.



Changing room fittings, above, are of galvanized mild steel tubular supports, rails and brackets, all welded. The slatted seats and peg rails are of West African mahogany. Finishes to the changing rooms generally are smooth hard plaster ceiling, wood float finish plaster walls and terrazzo floor. Below, detail of a flush door and frame to a classroom. The plaster, two coat work, is finished with a wood float and separated from the door frame by a deep groove. Ironmongery is of anodized aluminium and the plastic panel behind the handle is bright yellow.



The classrooms on the second floor, below, have glazing on both sides for cross ventilation. The structural column can be seen with the beam projecting out to the face of the building. Beneath the beam and between the softwood window panels is the thin vertical metal window which accommodates the dark painted internal partition on the right of the door. These doors are necessary for means of escape, but they are very light and must lower the sound-proofing of the total wall considerably.



analysis

	s	d
Internal doors		10½
Flush skeleton cored, plywood faced and painted. Doors to classrooms have small glazed observation panel. Framed, all fully glazed. 144 single doors. 14 pairs of double doors. Some fully glazed.		
Ironmongery		10¾
Anodised aluminium		
Fittings	4	0¾
Booklockers are hardwood framed and veneered blockboard with clear varnish finish. Cloak and changing room fittings have galvanised M.S. supports and brackets with hardwood slatted seats. Kit lockers are galvanised wire mesh. Fittings in practical rooms are 2½-in. by 1-in. hardwood carcassing with 9-mm. plywood panels and ¾-in. multi-ply lipped doors. Tops are solid 1½-in. hardwood.		
Total of partitions:	7s	11½d

FINISHES

Floor finishes — 3 10½

Type of finish	*Area of each type*	*Cost per sq. yd.* s	d
Coloured granolithic paving	7,623 sq. ft.	9	3
Oil impervious cement and sand paving	297 sq. ft.	12	0
Quarry tile paving	3,096 sq. ft.	30	0
Ribbed tile paving	270 sq. ft.	40	0
Thermoplastic tile	26,028 sq. ft.	18	10½
Asphalt-based composition	1,035 sq. ft.	22	7
Precast concrete paving	504 sq. ft.	20	0
Terrazzo paving to stairs	315 sq. ft.	50	0

Wall finishes	1	0¾
Painted concrete and concrete blocks, 2 coats 1:1:6 plain-faced plastering with wood float finish.		
Ceiling finishes		10½
Plaster lath board and gypsum plaster.		
Roof finishes	2	2½
135 sq. yds. of 2-coat asphalt on cork insulation. 4,200 sq. yds. of 3-layer mineralised felt on cork insulation.		
Decorations	2	0¾
3-coat emulsion paint on plaster walls. 3-coat gloss paint on woodwork. 2-coat distemper on ceilings.		
Total of finishes:	10s	0½d

SERVICES

External plumbing		5
18-gauge capping in aluminium to felt roofing. 4-in. steel screwed and socketed galvanised painted r.w.p.'s and heads.		
Hot and cold water installation	3	8½
Oil-fired boiler and calorifier with automatic controls.		

analysis

	s	d
Lightweight copper tubing capillary fittings, part in ducts, part exposed. 1,600-gall. galvanised steel cold water tank in housing over class block.		
Sanitary fittings	11	

Type of fitting	*No. of each type*
Sinks	53
Lavatory basins	40
Footbaths	4
High level w.c. suites	21
Low level w.c. suites	13
Urinals	5
Drinking fountains	9

Heating and ventilation Low pressure hot water heating with 2 automatic oil-fired boilers. Hospital-type radiators in classrooms, floor panel in entrance hall, cabinet heaters in laboratories and assembly hall. High level main service duct through corridor in lower ground floor.	5	1½
Gas installation 2 separately metered supplies to kitchen and practical rooms.		5¼
Electrical installation	3	2½

Type of point	*No. of each type*
Lighting points	591
30-amp. power points	5
13- and 15-amp sockets	119
Fire alarm and class changing bells	10
Radio jack points	25

Total of services:	**13s**	**9¾d**
Drainage Separate systems to soil and surface water sewers. Stoneware drains generally with some cast iron under buildings.	4	1¼
Total cost per sq. ft. of floor area : £162,713 11s 1d (excluding external works) / 48,050 (measured inside external walls)	=	67 8¾

COST COMMENTS

Two impressions arise from a study of this analysis, (*a*) the overall cost of 67s 8¾d is relatively low for a secondary modern school, and (*b*) not a great deal has been spent on finishings.

Assuming that the school was built to the maximum cost limit imposed by the Ministry of Education, the relatively low cost per square foot would indicate that the area per place is higher than normal.

The school is designed for 600 pupils and therefore the cost target of the school buildings and playgrounds was 600 × £264 per place, *i.e.*, £158,400, the exact figure depending on the number of cost places. As the tender figure was £174,753 and the final figure was £162,713, a cut of approximately 7 per cent has had to be made on the original scheme.

If cuts have to be made on a scheme after tenders have been received finishings are invariably first to go, as it is difficult to make economies in the structural design at this stage. This school would appear to be no exception, *e.g.* the greater area of the school is paved with a cheap thermoplastic tile, or an even cheaper coloured grano paving.

CONTRACTORS

General contractors: E. Thomas & Co. Ltd. *Sub-contractors: Plumbing and heating installation:* Maddock and Wright Ltd. *Electrical installation:* Atkinson Electrical and Engineering Co. Ltd. *Metal windows and ironmongery:* James Gibbons Ltd. *Balustrades:* Woodrow Metals Ltd. *Wood block flooring:* Newsons Ltd. *Terrazzo flooring:* Bristol Art Floors Ltd. *Cloakroom fittings:* C. B. Gurmin Ltd. *Roller shutters:* Shutter Contractors Ltd. *Sliding folding partition:* Esavian. *Prestressed concrete beams:* Bathand Portland Stone Firms Ltd. Concrete Development Ltd. *Carda windows:* Holcon Ltd. *Sanitary fittings:* John Bolding Ltd. *Roof ventilators:* Greenwoods Ltd. *Terrazzo partitions:* F. & J. Moore Ltd. *Flush doors, benches and cupboard fittings:* Shapland and Petter Ltd. *Kit lockers:* Cloakroom Equipment Ltd. *Chalk boards:* Wilson and Garden Ltd.

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·DRI-SIL· SILICONE TREATMENTS

This Sheet describes Dri-Sil silicone solutions for the treatment of concrete, brickwork, masonry, asbestos-cement, etc., in buildings, against the penetration of moisture.

General

Midland Silicones Limited manufacture the basic silicones from which diluted solutions and treatments are prepared and marketed by various paint and allied industries. Midland Silicones Limited will supply on request a list of these products and their manufacturers.

Silicones are synthetic materials with properties mid-way between those of inorganic silicates, like quartz and sand, and the organic and less durable polymers, such as alkyd resins and polyvinyl compounds. The most important properties of silicones are water-repellency and stability, the former being that which is of interest to the building industry. The water-repellency is due to the shielding action of the methyl groups attached to the silicon-oxygen chain. Silicones possess the property of being able to bond with the material of the substrate to produce in the latter a resistance to moisture penetration which is permanent. They provide a water-repellent, not a water-proofing, treatment and are therefore unsuitable for basement walls and other underground constructions, where water under hydrostatic pressure is present.

Types

Two types of silicones, Dri-Sil 29 and 37, are used in the manufacture of the treatments referred to on this Sheet and they are briefly described below. It is important to note that both treatments should contain 3 to 5 per cent. active silicone by weight for satisfactory performance on most substrates. Lower concentrations may give good results on very dense substrates.

Dri-Sil 29: Masonry treatments based on Dri-Sil 29 are effective on all types of substrate except limestones and are recommended for all general applications. These treatments are supplied as organic solvent solutions and since the solvents are inflammable and sometimes toxic, suitable precautions must be taken in their use.

Dri-Sil 37: Masonry treatments based on Dri-Sil 37 are supplied as aqueous solutions and are suitable for application to damp surfaces where a solvent-based treatment is not acceptable. They are particularly recommended for use on limestones. These treatments are highly alkaline and should be handled with the same caution as diluted solutions of caustic soda.

Method of Application

Both Dri-Sil 29 and 37 solutions can be applied by brush or spray. When spraying, a flooding technique should be used, the pressure of the gun being the minimum required to give a non-atomised stream and the gun being held close to the surface to be treated. As a general rule when brushing or spraying, a run down of at least 12 in. should be aimed at. Both types of treatment take 24 hours to develop a satisfactory degree of water-repellency.

Coverage

One gallon of solution will cover 100 to 200 sq. ft., depending upon the nature and porosity of the surface.

Properties of Treated Surfaces

Water-repellency: The treatments penetrate the substrate to a depth of $\frac{3}{16}$ in., lining the surface pores of the material with a thin water-repellent film. The "breathing" characteristics of the material are not seriously affected.

Water absorption: The reduction in water absorption of materials treated with the solutions is notable. Accelerated tests have been carried out on various bricks and blocks in the manufacturer's laboratories and the results of these are given in the table below. The method of test is to seal with wax the four sides of the brick adjacent to the side to be tested, leaving the upper side (normally the frog) unsealed. The lower face is treated with silicones and, after weighing, laid in a tray of water, immersed to a depth of about $\frac{1}{4}$ in.: this level of water is maintained throughout the test. Any water that then enters the brick must do so through the immersed surface and, since no external pressure is applied, any absorption is due to capillary action alone. The specimens are moved occasionally and weighed at intervals up to fourteen days. Untreated specimens are also immersed for comparison. The effect of the test on the specimen is assumed to be equal to that produced on a wall by rain wind-driven at 20 miles an hour. The figures given in the table are an average for 5 bricks or blocks.

Substrate		Water absorption (per cent)		
		Untreated	Dri-Sil 29	Dri-Sil 37
Bricks	Sandlime	12·0	2·2	4·1
	Ibstock	17·7	0·5	0·5
	Flettons	19·5	0·7	1·1
Blocks	Concrete	1·6	0·1	0·2
	Clipsham	8·3	8·2	1·0
	Portland	5·8	5·3	1·5
	Bath	10·0	8·2	2·1

It will be noted that Dri-Sil 37 solutions give a better performance on limestones than Dri-Sil 29 solutions. The Dow Corning Corporation, the manufacturer's American associates, have carried out tests on treated and untreated substrates to determine the effect of natural weathering on the water-absorbing properties of the materials concerned. The specimens were

40.C2 ·DRI-SIL· SILICONE TREATMENTS

tested over a period of three years and the results are given in the following table.

Substrate	Treatment	Water absorption (per cent)	
		Initial	After 3 years
Sandstone	None	7·0	6·2
	Dri-Sil 29	0·1	0·5
	Dri-Sil 37	0·1	0·2
Cement block	None	6·0	5·9
	Dri-Sil 29	0·4	0·7
	Dri-Sil 37	0·6	2·7
Chicago Common Brick	None	20·0	20·1
	Dri-Sil 29	0·1	0·3
	Dri-Sil 37	0·3	0·2
Limestone*	None	6·2	6·4
	Dri-Sil 29	1·3	1·7
	Dri-Sil 37	0·1	0·7

* The limestone in this case is of American origin and does not compare with English limestones, which probably explains the good results obtained with Dri-Sil 29.

The results shown in the preceding tables were obtained using 5 per cent solutions of Dri-Sil 29 and 37, as this concentration gives the best results over the widest range of substrates. The table below furnishes a comparison between the water absorption figures obtained for 2 and 5 per cent solutions of Dri-Sil 29.

Substrate		Water absorption (per cent)		
		Untreated	2 per cent. solutions	5 per cent. solutions
Bricks	Sandlime	12·0	7·8	2·2
	Leicester Red Clay	17·7	14·9	0·0
	Flettons	19·5	1·0	0·7
Concrete		1·6	1·6	0·1

Thermal insulation: By reducing the water content of the walling material the thermal insulating properties are automatically improved. Brickwork that has absorbed 10 per cent of moisture has a thermal conductivity 1½ times that of dry brickwork, which means that its naturally good heat-insulating properties are immediately lost when the structure becomes wet. Dry aerated cement is one of the most efficient heat-insulators, but, untreated, it can absorb 40 to 50 per cent of water which causes that property to disappear. The treatment of these materials with silicones, therefore, greatly improves the thermal insulation of the building without sealing the surface.

Prevention of efflorescence: Silicone treatments prevent efflorescence, as the soluble salts present in bricks cannot be carried to the surface, but must remain at the point of deepest penetration of the treatment. It has been suggested that in certain circumstances this accumulation of soluble salts may cause spalling; the pressures set up by crystallisation of these salts may cause the surface layer to be disrupted. No case where this has occurred is known in the experience of the manufacturer, but it is advisable as a precaution to avoid using silicone treatments on walls which are not provided with adequate damp-proof courses, or anywhere where water can enter behind the treated surface to dissolve the salts. Experiments are being carried out to establish whether there is any danger of spalling but evidence to date indicates that the risk is negligible.

Prevention of cracking and crazing: A considerable amount of cracking and crazing in a building material is due to freezing and thawing of absorbed moisture. The tendency to this damage is substantially reduced by the use of silicone treatments. The application of this aspect of silicone treatment has been extended in America to concrete pavings, motorways, bridges and lamp standards.

Resistance to dirt: As silicone treatments do not allow rainwater to penetrate, carrying dirt into the pores of the substrate, treated buildings remain clean for a far longer period than untreated.

Trade Name

The word Dri-Sil is a registered trade mark.

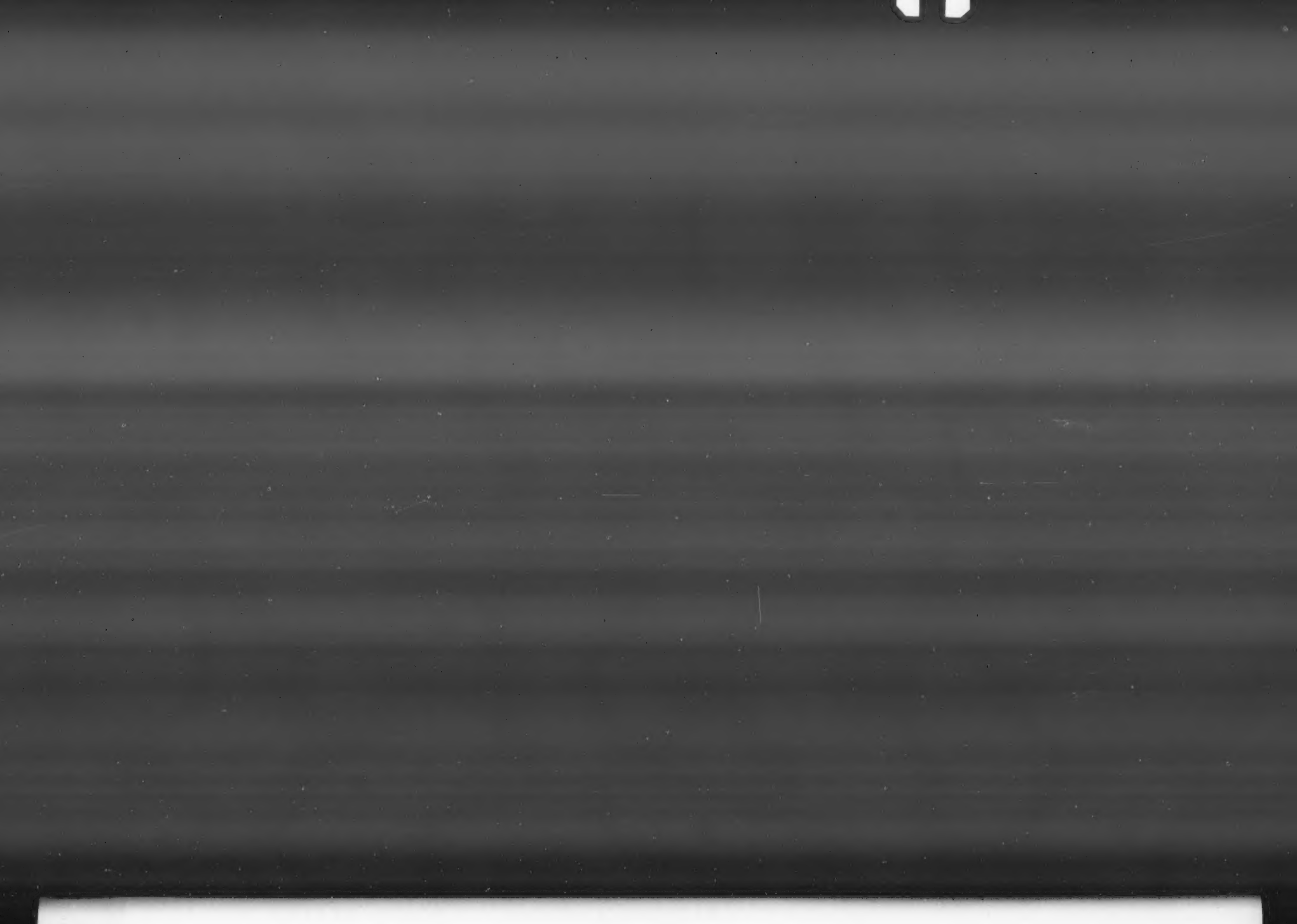
Further Information

Architects are advised to seek technical advice from the manufacturers of the treatments before using silicone treatments on any particular material, so as to ensure that the correct type of solution and concentration is used.

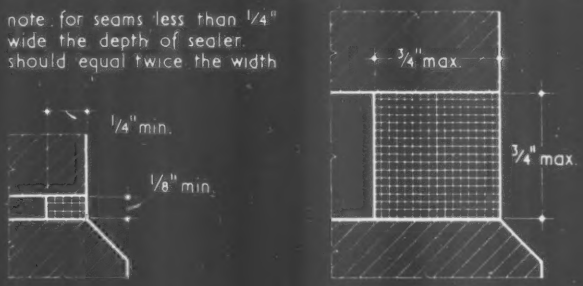
Compiled from information supplied by:

Midland Silicones Limited
Head & London Office: 68, Knightsbridge, London, S.W.1.
Telephone : Knightsbridge 7801.
Production and Technical Service : Barry, Glamorgan.
Telephone : Barry 1010.
Birmingham Office : Union Chambers, 63, Temple Row, Birmingham, 2.
Telephone : Midland 7705.
Glasgow Office : 75, St. George's Place, Glasgow, C.2.
Telephone : Central 5440.
Leeds Office : 5-7, New York Road, Leeds, 2.
Telephone : Leeds 26768.
Manchester Office : 406-7, Royal Exchange, Manchester, 2.
Telephone : Blackfriars 4441.

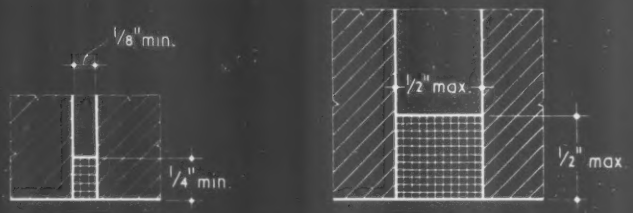
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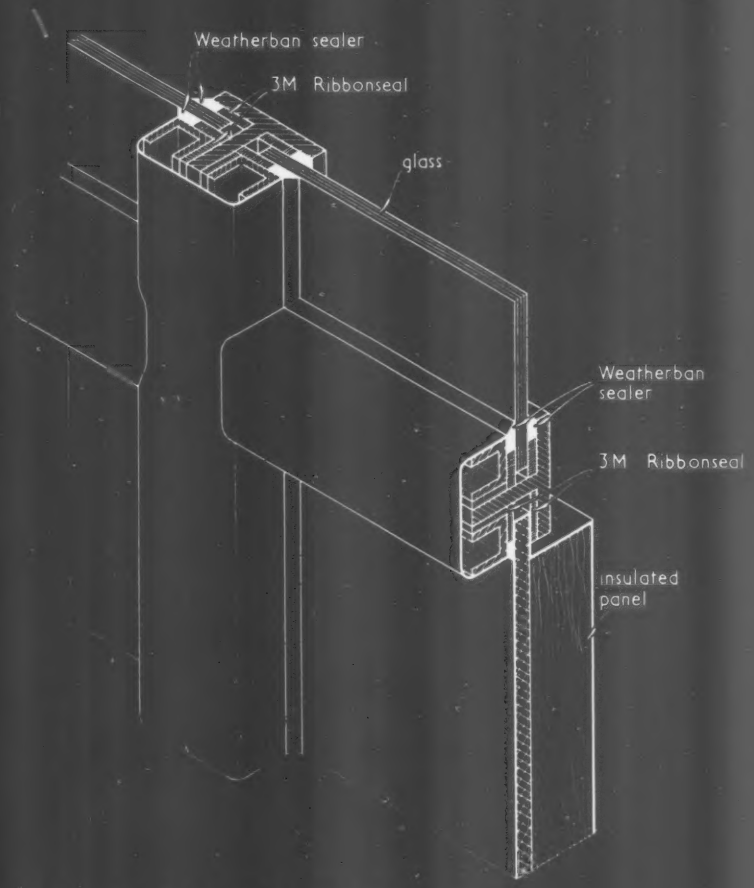


horizontal joint at base

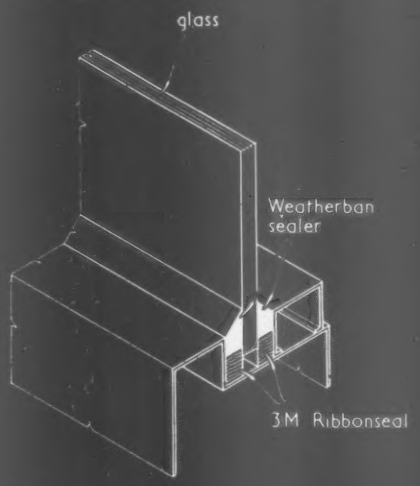


horizontal overhead or vertical joint or corner

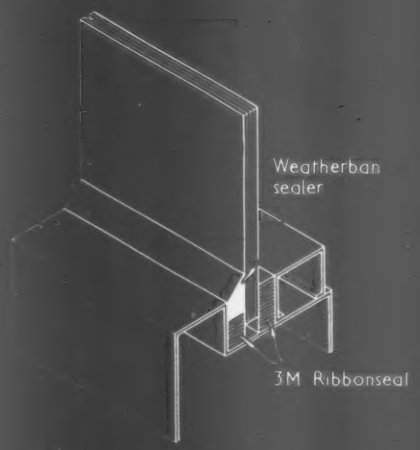
DESIGN OF JOINTS.



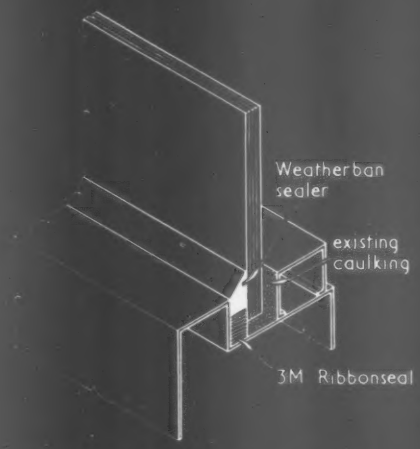
TYPICAL APPLICATION TO CURTAIN WALL.



double seal



single seal (suitable where little movement is anticipated)



repair of existing caulking compound

APPLICATION OF SEALER.

3M WEATHERBAN SEALER FOR CURTAIN WALLS AND SIMILAR CONSTRUCTIONS.

Manufacturer: Minnesota Mining & Manufacturing Company Limited.

26.M4 ·3M WEATHERBAN· SEALER FOR CURTAIN WALLS AND SIMILAR CONSTRUCTIONS

This Sheet describes Weatherban sealer for curtain walls. This has been produced to meet the need for an effective waterproofing material that will take up the differential movement in curtain walling constructions over long periods, to an extent not possible for normal mastics and putties. It can be used for sealing exterior and interior joints and openings between panels, windows and the metal framework of the building. The drawings on the face of the Sheet show typical applications and joint sizes.

Material

Weatherban is a two-part polysulphide synthetic rubber sealer specially compounded by the manufacturer which, after the addition of an accelerator, cures to a tough rubbery consistency. The standard colours are black, tan and aluminium: other colours are available.

Properties

After curing for seven days at a temperature of 75° F, the material should acquire the following properties:

Adhesion: When fully and properly mixed, it should possess excellent adhesion to aluminium, glass, porcelain enamel, concrete, masonry, stone, including marble, as well as other monolithic surfaces, and unpainted wood. When tested, the following minimum adhesion figures in lb. per inch width should be attained: 50 (black), 30 (tan) and 20 (aluminium).

Elasticity: The sealer should elongate 3 to 5 times its superficial joint width without loss of adhesion or breaking of the sealer, notwithstanding a breakdown in the surfaces to which it is applied.

Tensile strength: The sealer should give minimum figures in lb./sq. in. of 20 (black), 80 (tan), and 85 (aluminium), the figures representing the dynamic loads required to produce failure.

Shear strength: The sealer should give minimum figures in lb./sq. in. of 130 (black), 80 (tan) and 30 (aluminium), the figures representing the dynamic loads required to produce failure.

Sag: An overhead joint of $\frac{1}{2}$ in. thickness should not sag at all.

Hardness: The sealer should have a Shore A-2 durometer hardness of 30 to 40, 7 days after curing at 75° F.

Shrinkage: The solids content of the sealer should be 98 per cent $\pm$ 2 per cent by weight, so that no shrinkage takes place in the joints.

Weather resistance: The sealer should have excellent resistance to ultra-violet light, oxidisation, solar heat and extreme climatic conditions.

Temperature range: In service, the sealer should perform satisfactorily without any change in its physical properties in temperatures ranging from — 65° to 180° F.

After adding the accelerator, the sealer has a working life of 3 to 6 hours at 75° F and 50 per cent. relative humidity. When applied, it should be tack-free in 24 to 48 hours, under the foregoing conditions of temperature, etc., and should be fully cured in 5 to 7 days. In an unmixed condition it should remain usable up to 8 months when stored at room temperature.

Preparation of Surfaces

All surfaces to receive the sealer should be clean, dry and sound and should be wiped with a clean cloth moistened with 3M Weatherban solvent. Concrete, masonry, stone, including marble, other porous materials and wood should be primed with Weatherban primer before application of the sealer. On new work, the bottom of the joint should be partially filled with 3M Ribbonseal black or white sealer to act as a stop and effect economy in the use of 3M Weatherban sealer. Where teak is used the manufacturer should be consulted. Where application is to be made over existing oil-based caulking compound or similar, the latter should be cut back to the base of the exterior joint, thoroughly cleaned as previously described and recaulked with 3M Ribbonseal to within $\frac{3}{8}$ in. of the surface, then sealed with 3M Weatherban sealer. Areas adjacent to joints should be masked with 3M Scotch brand masking tape, where necessary in order to obtain a clean line with the sealer.

Method of Application

In accordance with the manufacturer's detailed instructions for mixing, the entire contents of the accelerator container are thoroughly mixed into the container of base material, the latter being supplied three-quarters full for the purpose. The mixed sealer is then applied, to the manufacturer's instructions, with compressed air operated equipment. Care must be taken to use up the mixture before it reaches a point where it is difficult to extrude from the gun. Joints should be struck with a suitable tool as necessary if masking tape has been used. Masking tape should be removed within an hour of application of the sealer. Excess sealer should always be cleaned off,while still in a liquid condition, with 3M Weatherban solvent. Sealed joints should not be touched, washed or in any way disturbed for at least 24 hours. The sealer should not be applied at temperatures below 40° F as at these temperatures a film of condensation may have formed on the surfaces to be sealed.

Coverage

The $\frac{3}{4}$-gallon unit of prepared sealer will produce approximately 540 linear feet of $\frac{1}{8}$ in. by $\frac{1}{4}$ in. seam.

Approved Contractor Service

To ensure that the sealer will give the required standard of performance, the manufacturer has appointed Mann-Reddington Limited, Hornchurch, Essex, as approved contractor for its application.

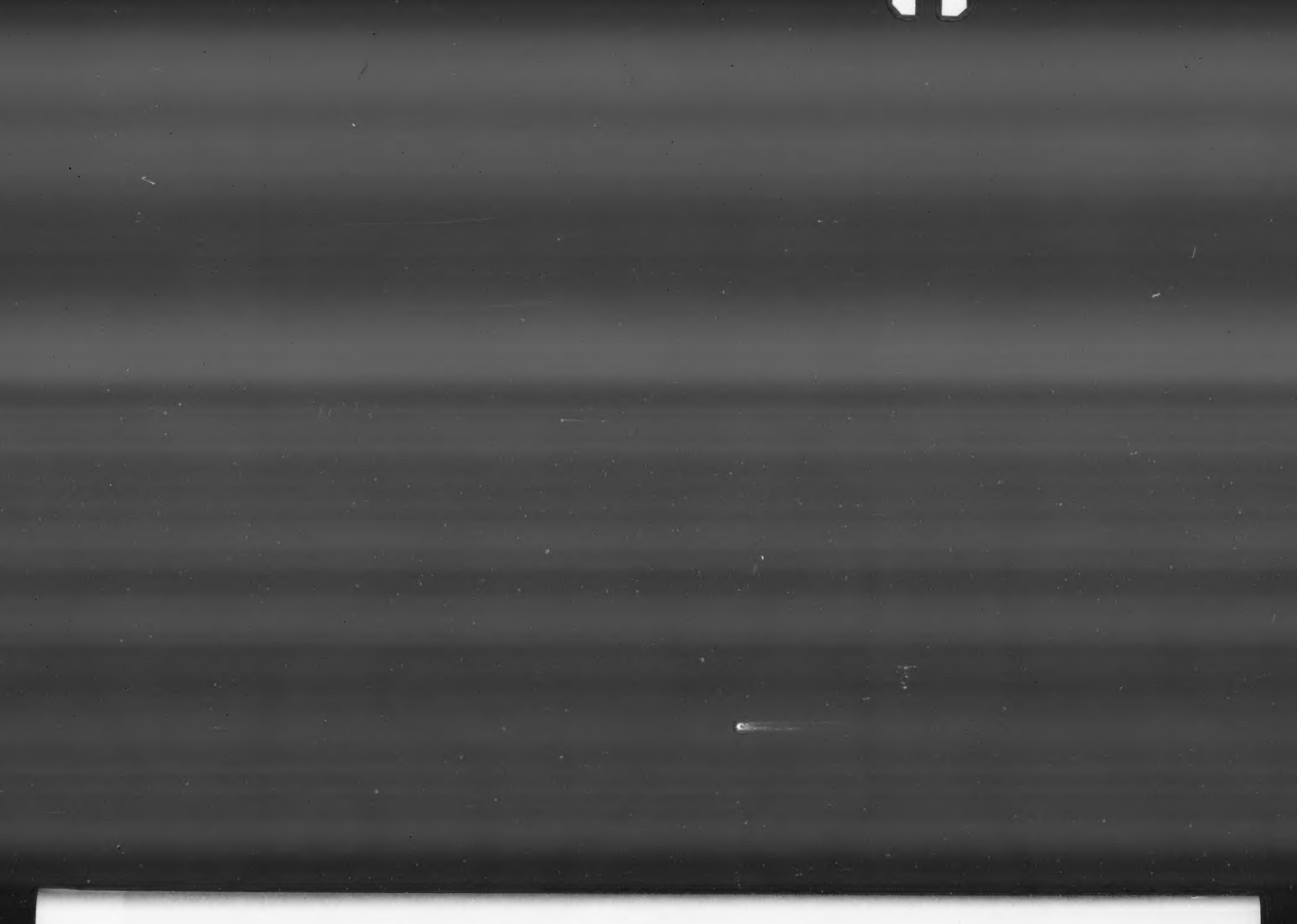
Further Information

The manufacturer maintains an advisory service which is available to answer questions and deal with technical problems concerning this subject generally. Copies of the full specification for sealing curtain walls with 3M Weatherban sealer are obtainable from the manufacturer.

Compiled from information supplied by:

Minnesota Mining & Manufacturing Company Limited
Address: 3M House, Wigmore Street, London, W.1
Telephone: Hunter 5522.

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working detail

DOORS: 38

PIVOTED DOOR: CHURCH IN GLENROTHES, FIFE

Gillespie, Kidd and Coia, architects

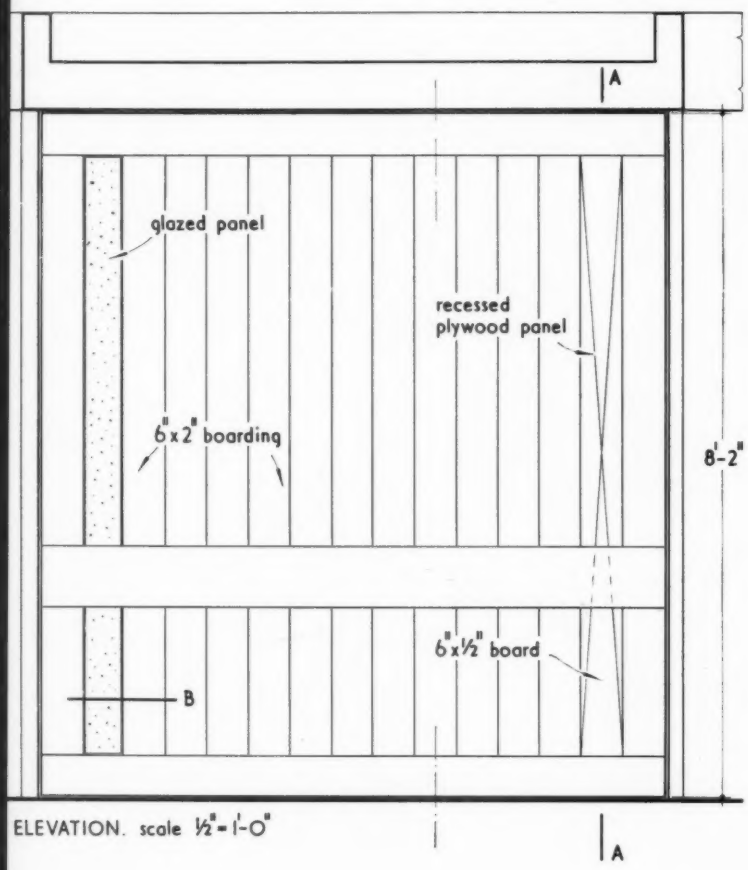


This pivoted door is fitted with a double-action door spring to hold it open at 90°. There are no door stops as the floor spring and the weight of the door are sufficient to hold it stationary when open. The wood is British Columbian pine. The centre rail provides a hand-pull on the inside where it crosses the vertical strip of glazing and the corresponding " blind " recess at the other end of the door.

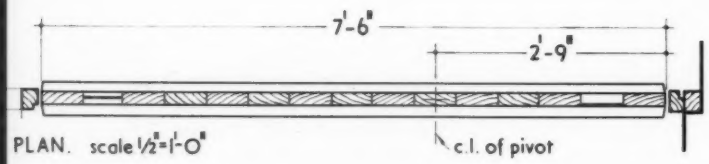
working detail

PIVOTED DOOR: CHURCH IN GLENROTHES, FIFE

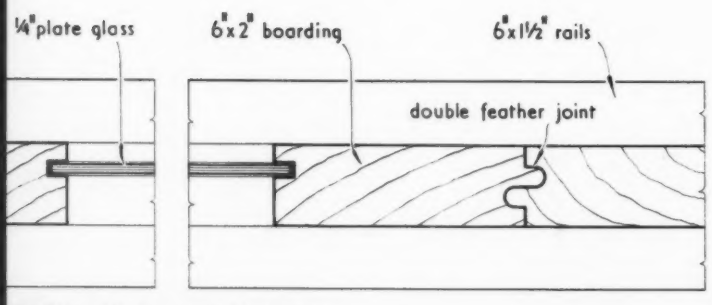
Gillespie, Kidd and Coia, architects



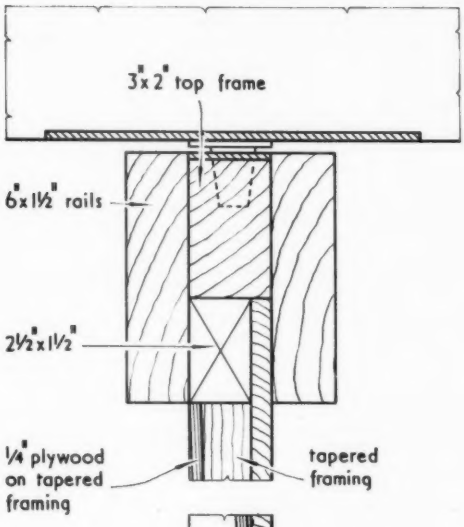
ELEVATION. scale ½"=1'-0"

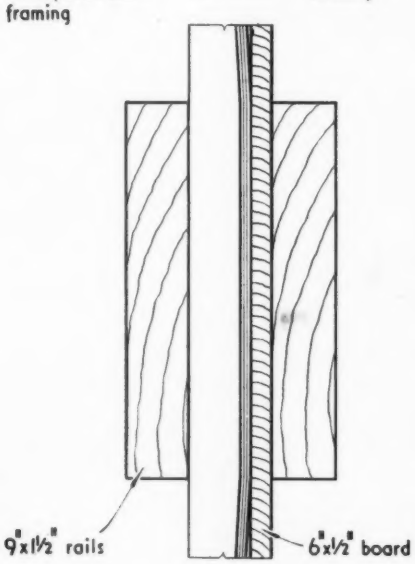


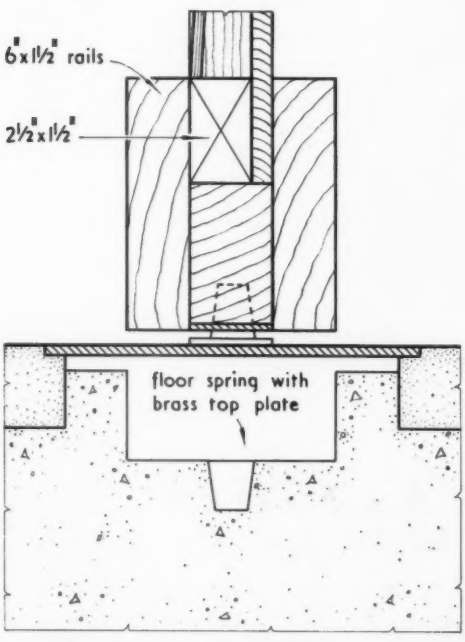
PLAN. scale ½"=1'-0"



DETAIL AT B. scale ¼ full size







SECTION A–A. scale ¼ full size

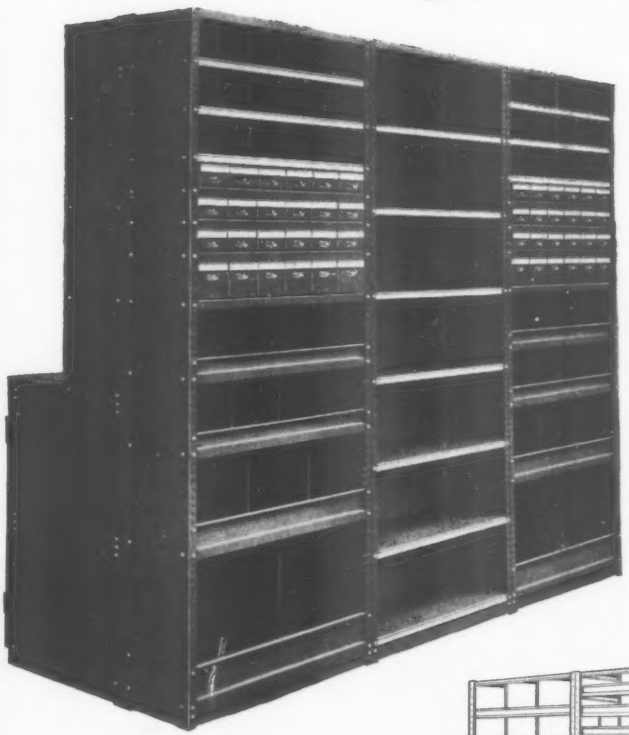


Hey Presto!

TODAY'S
open shelves can be
TOMORROW'S
fitted units



Here is a storage system which is so flexible that it can always be completely up-to-date.
From the carefully designed range of components, it is an easy matter to plan and erect an installation which will not only satisfy immediate storage needs but which can also be rapidly adapted to meet new requirements. Large articles or small, many or few, can be segregated as desired, and sections may be enlarged, reduced or subdivided at any time to conform to a changing pattern of purchases, production and consumption.





Components are made from best quality mild steel sheet and rolled steel sections, and are available in a range of standard sizes. Stove enamelled Olive Green or Scarborough Grey.

A typical three-bay assembly of trays, bins and shelves. The reverse side incorporates bins, cupboards and a ledge top. Bays may be varied as required, and joined to form a continuous run.



Full details of components and a selection of specimen assemblies are shown in List 1015. Please send for a copy. Mobile Type Shelving also available. Details on request.

HARVEY

ADJUSTABLE Steel Shelving

ANGLE POST TYPE
(Based on B.S.826 : 1955)

G. A. HARVEY & CO. (LONDON) LTD.

WOOLWICH RD., LONDON, S.E.7
Telephone: GREenwich 3232 (22 lines)

SE/11



On the one hand...

where time is the essence of the contract and labour costs must be kept to a minimum—the paint to select for thoroughly satisfactory results for interior walls and ceilings is

'Murisan'

LATEX EMULSION WALL PAINT

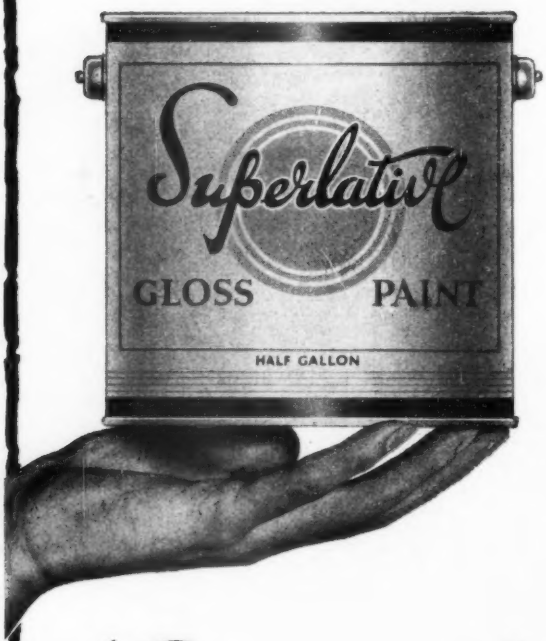
- *Can be speedily applied with large wall brushes.*
- *Can be second-coated within one hour*
- *No objectionable odour.*

Conforms to the requirements of the Factories (Cleanliness of Walls and Ceilings) Order—5 years exemption from re-painting permitted if *Murisan* is used.

With a finish equal to that of conventional flat oil paints Murisan *is resistant to alkalis, oil, bitumen and creosote—odourless, durable, washable. Interior and Exterior Grades.*

On the other hand...

when a supremely high standard of gloss finish is to be achieved by craftsmen who take pride in the results the specification will, without doubt, be "Superlative," the paint of high-gloss perfection that does not 'bloom'. When great projects are planned, where long-life protection is essential, whether for exterior or interior use.



'Superlative'

THE BEST GLOSS PAINT IN THE WORLD

BPL/D79

BRITISH PAINTS LIMITED

Portland Road, Newcastle upon Tyne, 2. · Crewe House, Curzon Street, London, W.1. 31, Wapping, Liverpool.

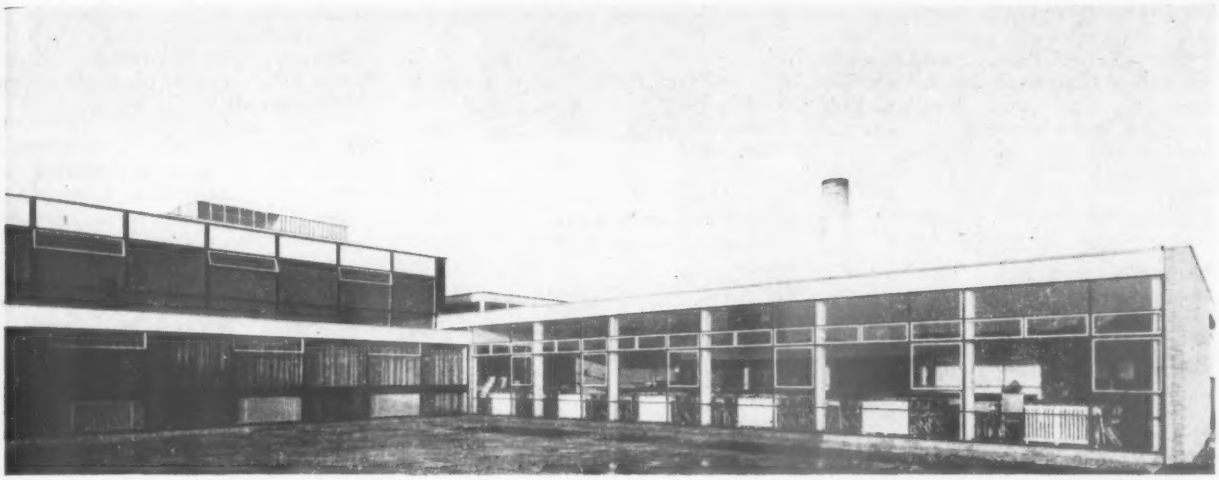
BY APPOINTMENT TO HER MAJESTY QUEEN ELIZABETH II MANUFACTURERS OF PAINT BRITISH PAINTS LIMITED

BELFAST · BIRMINGHAM BRISTOL · CARDIFF · GLASGOW · LEEDS · LIVERPOOL · MANCHESTER · NORWICH · PLYMOUTH SHEFFIELD · SOUTHAMPTON · SWANSEA AND ALL PRINCIPAL TOWNS.

PAINTING ADVISORY SERVICE:

For expert advice on correct coatings for surfaces and conditions involved, do not hesitate to consult our Painting Advisory Service

TECHNICAL COLLEGE AT REDCAR, YORKSHIRE



The new Cleveland Technical College (architects Gollins, Melvin, Ward & Partners) represents an interesting interim stage in the programme, launched by the Government in 1956, which envisaged spending £70 million on technical colleges in five years. Technical colleges pose problems for Education Authorities and architects, radically different from those encountered in primary and secondary schools: not the least being that presented by the Further Education side of the programme. The college is designed to be built in three stages, two of which are now complete. The general appearance of the school is clean and well ordered from all aspects. The curtain wall is contained between light sand-coloured "book-end" walls and has a two foot deep facia. The main material used in the curtain wall is aluminium. General contractors, F. Shepherd & Son, Ltd. A full description will be published in the JOURNAL *shortly.*



Something really new in Marley precast concrete buildings



MARLEY clear span

Absolute maximum of clear headroom
Spans: 20—50 feet, single and multiple

Quotations and full details on request

The new MARLEY Clear Span concrete building gives you maximum advantages at lowest cost:
No ugly exposed bolts to rust or deteriorate.
Virtually no maintenance required. Complete Supply and Erection Service by Marley skilled erection teams.
Height: Up to 18 feet to eaves.
Lengths: Standard bay lengths of 15 feet.

MARLEY CONCRETE LIMITED, Dept. 630
Peasmarsh, Guildford, Surrey (Head Office) *Guildford 62986*
Shurdington, Nr. Cheltenham, Glos. *Shurdington 334/5*
Hatchpond Road, Waterloo, Poole, Dorset *Broadstone 626*
London Showrooms: 251 Tottenham Court Road, W1.

Announcements

PROFESSIONAL

Alun Jones, DIP. ARCH., A.R.I.B.A., has taken J. R. Allerton, A.R.I.B.A., A.M.T.P.I., into partnership and the practice will continue from 39, High Street, Bromley, Kent (telephone Ravensbourne 0472), under the name of Alun Jones and Allerton.

Robert Shaw, B.ARCH. (L'POOL), A.R.I.B.A., A.M.T.P.I., has moved to 11, Billing Place, West Brompton, London, S.W.10.

Richard Pickles & Partner have opened a branch office at 5 & 6, King's Court, The Shambles, York (telephone York 25531). W. R. Lofthouse, DIP.ARCH (LEEDS), A.R.I.B.A., will be in charge.

TRADE

Prestressed Sales Limited, of 1, Adelaide Street, W.C.2, has recently been formed as a subsidiary of Ductube Co. Ltd. to handle those products connected with prestressed concrete.

Metropolitan-Vickers Electrical Co. Ltd. have appointed H. West as Assistant Managing Director; he ceases to act as Director of Electrical Engineering.

Elextrolux Publicity Department has now moved to 419, Oxford Street, W.1 (telephone Hyde Park 1616).

Frank Smith has been appointed Northern Area Sales Manager for Rivington Carpets Limited.

Winn & Coales Ltd. announce the inauguration of their American Company—Denso Incorporated, with offices in Detroit and Camden, N.J.

4-D Associates Limited have moved to Windsor House, Kingsway, W.C.2. The telephone number is still Chancery 2523 and 2522-4-5-6.

D. D. Morrell, Managing Director of The Mitchell Construction Co. Ltd. has been appointed a Director of Mitchell Engineering Ltd.

The Headquarters of Semtex Ltd. have been transferred from Hendon to new premises at 19-20, Berners Street, W.C.1 (telephone Langham 0401). The new telegraphic address is Semtex Wesdo London, and the cable address, Semtex London.

British Insulated Callender's Cables Limited have appointed Sir John Dean as Director of the Company.

P. A. Nutkins has been appointed Assistant Sales Manager of the Lamps and Lighting Division, Siemens Edison Swan Ltd.

J. E. C. Bailey, Chairman and Managing Director of Baird and Tatlock (London) Ltd., and Hopkin and Williams Ltd., has left for a short tour of Uganda, Kenya, Northern Rhodesia, Southern Rhodesia and South Africa. He will be visiting the Companies' Branches, Agents and Representatives in these countries.

Prat-Daniels (Stroud) Ltd. of Whitecroft, Nailsworth, Stroud, Glos., have moved their London office to 62/3, Fenchurch Street, E.C.3 (telephone Royal 4122/6305). A. O. R. Johnson, Managing Director of T. H. & J. Daniels Ltd., has joined the Board of Prat-Daniels (Stroud) Ltd.

The function of Public Relations within the De La Rue Group of Companies has been decentralized, and as a result Miss Pamela Gray has been appointed Public Relations Officer of Formica Limited.

H. Newsum Sons & Co. Ltd., who announced their new lost cost timber curtain walling system recently, have decided to name their new product Panaline.

A. E. Morton has been appointed Sales Promotion Manager of the recently announced Matbro Group of Companies consisting of Mathew Brothers, Matbro Works, Sandy Lane North, Wallington, Surrey; Mathew Brothers, Matbro House, Beddington Lane, Croydon, Surrey; Power Plant Hire (Beddington) Ltd., Beddington Lane, Croydon, and Matbro Ltd., Horley, Surrey.

Correction

In the JOURNAL of January 15 the external finish of the offices in Blackfriars Road, designed by R. Seifert, was incorrectly described. The finish was, in fact, obtained by applying a patent render with a trowel and exposing the aggregate by means of a felt float.

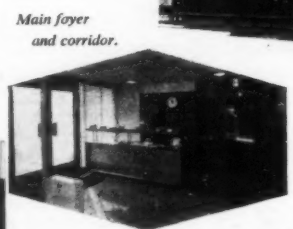
NEW DEVELOPMENTS
NEED NEW DEPARTURE BUILDINGS

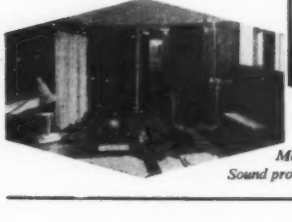
Be contemporary! Specify NEW DEPARTURE Buildings for your Clients' new developments. Every day more and more Consulting Engineers realise the advantages of these modern stress-bonded buildings (temporary or as permanent as you require) — new framing, new sheeting, new lining, new insulation, new glazing, new decor and new efficiency. Where there are new developments, it pays to specify NEW DEPARTURE.

B.R. Recruitment Centre, Euston Station.



Main foyer and corridor.

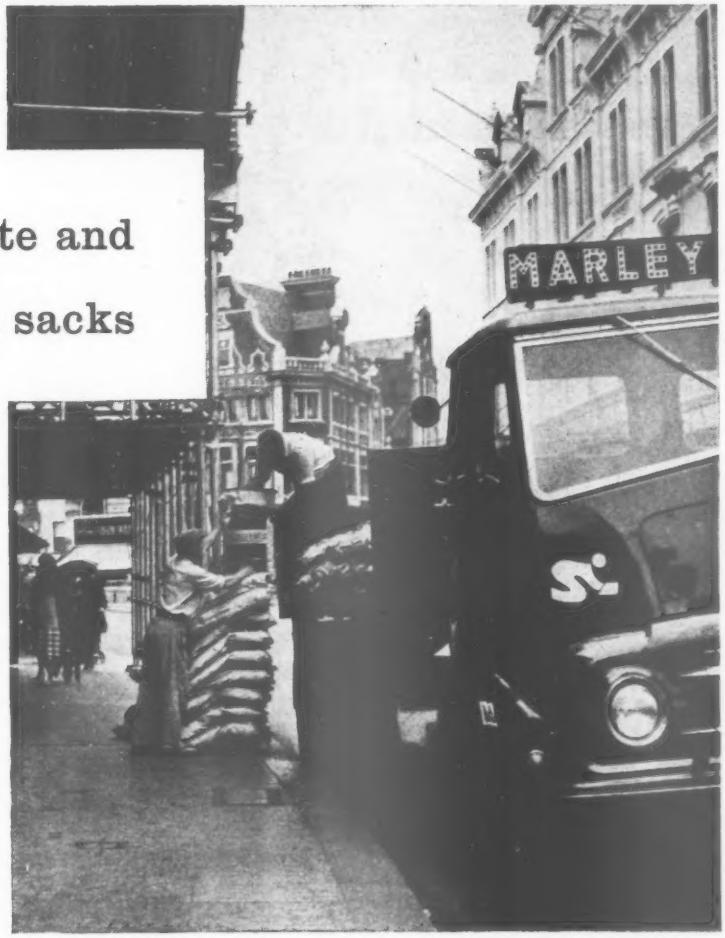




Medical Officer's Suite. Sound proofed and double glazed.

STEPHENSON DEVELOPMENTS (HUDD) LTD

BROUGHTON HOUSE, 6/8 SACKVILLE STREET
PICCADILLY, LONDON, W.1. Telephone: REGent 5860



Ready-to-use concrete and mortar dry mixes in sacks

All the extra convenience plus absolute consistency yet GILBERT-ASH LTD. prove an actual saving



Gilbert-Ash Ltd. have already used over 150 tons of MarleyMix ready-to-use concrete and mortar mixes while carrying out the extension of shop premises at Richmond.

MarleyMix was originally chosen for all the concrete and mortar work because of the inaccessibility of the site, which lay behind existing premises—with sole means of access through a gown shop! The use of MarleyMix—apart from allowing this difficulty to be overcome—has ensured complete consistency in the highest quality and strength of the concrete and mortar. Yet these advantages have not cost anything —*in fact a saving of* 5/3 *per cubic yard has been achieved on the coarse concrete and approximately* 9d. *per yard super on the brick-laying mortar.* These figures take into account the total cost otherwise involved in the separate purchase, transport and handling of sand, aggregate and cement.

Marley Mixes include:

FINE CONCRETE
for all fine finish work.

COARSE CONCRETE
for infilling, path bottoming and similar work.

CEMENT MORTAR
for rendering over brickwork in contact with the earth. Cement screeding. Drainage work and general purposes.

BRICKLAYING MORTAR
with water-repellent qualities and excellent bond to bricks. Consistent colour of pointing is assured.

RENDERING/PLASTER UNDERCOAT
a cement-lime-sand mix, easy to apply, with good bond to wall and water-repellent qualities.

When materials storage is limited, specify MarleyMix. The mixes, in sacks of approximately 1 cwt. capacity, need nothing but the addition of water. Absolute control of ingredients ensures consistency and overcomes all the variations which occur with site mixing.

MARLEYMIX **ready-to-use dry mixes in multi-walled paper sacks**

Deliveries can be pre-arranged to any required schedule
The Marley Tile Company Ltd.
Stifford Road, South Ockendon, Nr. Romford, Essex. South Ockendon 2201

A **MARLEY** *product*

MM/9/7

PAINTED WITH
Brolac paints



BARTON HOUSE, BRISTOL (*Photo by GRAHAM TIDMAN*)

City and County of Bristol Housing Committee
City Architect: ALBERT H. CLARKE, F.R.I.B.A., A.M.T.P.I.
Contractors: HOLLAND & HANNEN AND CUBITTS, LTD.

Barton House is the highest block of Local Authority dwellings in the Country, outside of the Metropolitan area. This is the first block of dwellings erected by Bristol City Council in the Barton Hill Redevelopment area. We are proud to record that Brolac Paints were used for this impressive building.

101 COLOUR RANGE

The full B.S.2660 range of gloss colours, together with the recommended B.S. Colours in semi-gloss and matt finishes, available from stock.

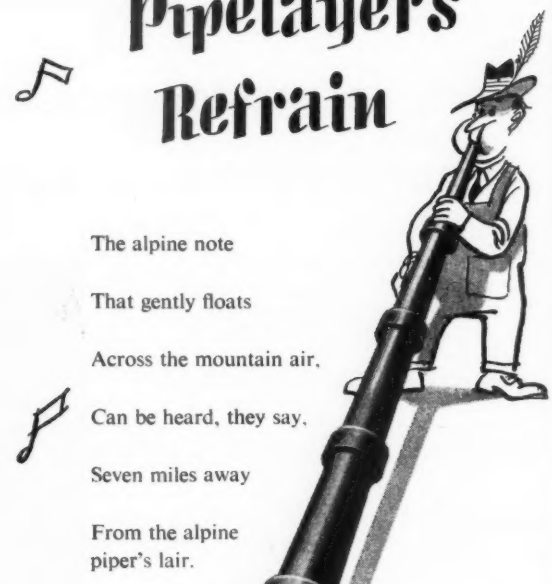
BROLAC GLOSS
BROLAC EGGSHELL
MURAC P.E.P.
MURAC VELVET

★ *The* JOHN HALL TECHNICAL AND COLOUR ADVISORY SERVICE *will be glad to assist with specifications and colour advice.*

JOHN HALL & SONS
(BRISTOL & LONDON) LTD.

HENGROVE, BRISTOL, 4 (*Tel: Whitchurch* 2162)
1/5 ST. PANCRAS WAY, LONDON, N.W.1 (*Tel: Euston* 2262)
26 PARK ROW, LEEDS, 1 (*Tel:* 34390)

The Pipelayer's Refrain



The alpine note
That gently floats
Across the mountain air,
Can be heard, they say,
Seven miles away
From the alpine
piper's lair.

Now DOULTON pipes,
The 3 ft. types,
In a run of seven miles
Will save at least six
thousand joints
On the usual 2 ft. style.

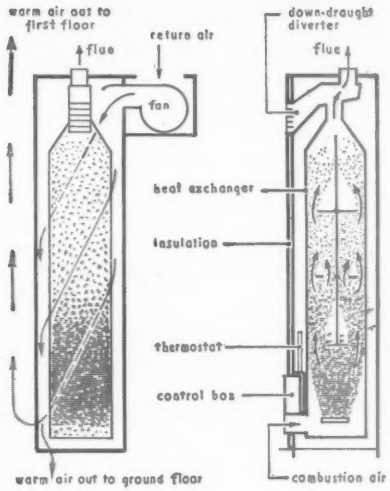
In the same unbeatable quality,
The same resisting clay—
You save one third on jointing costs
And get more done each day.

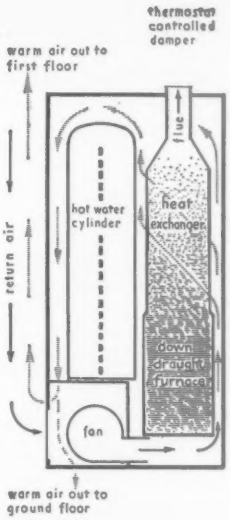
DOULTON VITRIFIED PIPES LIMITED

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DUCTED WARM AIR

gives a HIGHER COMFORT STANDARD than ANY OTHER HEATING SYSTEM





The best DUCTED WARM AIR system is called RADIATION DUCTAIR

These are the main advantages of ducted warm air heating:—

Speed of response—adjustment of the room thermostat alters temperature faster than is possible by any other system (e.g. to raise a room of 1500 cu. ft. from night background temperature of 55°F to 'breakfast-time' 60°F takes only 20 minutes, where insulation is to Egerton standards.) As soon as the thermostat calls, the full rated output of the unit is made available.

Flexibility. Speed of response means fuel economy can be effected by turning down the thermostat when rooms are not in use, knowing that the temperature can be restored quickly when required. (This is very valuable in, e.g., schools where intermittent heating is required.) For further economy whole rooms can be "turned off" by closing outlet grilles.

Uniformity of temperature distribution. *Low level* discharge and high level return allow very low temperature gradients. This avoids that "cold feet and hot head" feeling characteristic of some older systems.

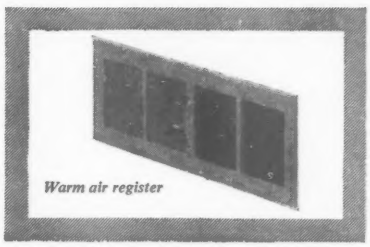
Freedom of planning—by heating the *whole* building *all* the enclosed space becomes useful space. Ducts are easily accommodated at planning stage and they make no demands on wall space. Outlet and return grilles are unobtrusive. Ducted warm air makes both "open" and conventional planning easier and offers scope for new ideas.

Clean heating—since warm air is "moved" into the room—instead of merely rising from an outlet—there is no discoloration of walls. (The warm air has, of course, no contact at any point with flue gases.)

Ventilation—the circulation of warm air is stimulating to the occupants and does away with the "heavy" feeling associated with earlier forms of central heating.

Clothes drying—efficient drying cupboards can be incorporated simply and cheaply. This is of particular value in multi-storey flats.

Drying out. A warm air system can be used



Warm air register

to speed the drying out of new buildings for early occupation.

Here are the reasons why:—

Running costs—Radiation engineers take running costs to be the true efficiency index of an appliance. Here is a short example—many others, in detail, may be seen on request. *Bungalow at Oulton Broad, Suffolk. 1500 sq. ft. insulated to Egerton standard. Heated by Ductair 0.50. Average oil consumption over 2 years (heating period 1 Oct. to 31 March) . . . 625 gallons domestic fuel oil. Standard of heating attained: Living room 60°F. Bedrooms 55-60°F (day and night averages.)* N.B. plus *domestic hot water during heating season. Out of season hot water by immersion heater.*

Installation costs—the Ductair system is cheaper than, for example, a fully thermostatically controlled radiator system using comparable fuel. Detailed comparisons are available.

Precision construction—tailored to the particular requirements of each contract, all Ductair is of the highest workmanship. This is essential in producing units of accurately predictable performance to give years of trouble free service.

Nationwide network of Radiation-trained stockists. To speed design and on-site work, Radiation have established more than 40 fully trained area stockists to provide real "head office" attention near your site. Regional design specialists can be called in by any stockist to meet new or unusual problems. Radiation offers a full after-sales service for Ductair equipment.

10 years' working experience in Britain. After a detailed examination of the best American practice in this field and research, Radiation have developed the Ductair system over ten years. This gives Radiation unrivalled experience *under the actual climatic and living conditions peculiar to this country.*

50 year background of research and experiment Radiation technicians, for well over 50 years, have been concerned with making better use of fuel. This is reflected in the simplicity of the highly efficient equipment they have evolved. It means too that Radiation engineers have an unusual ability to see their own system against a background of many alternative systems—an understanding particularly valuable at discussion stage.

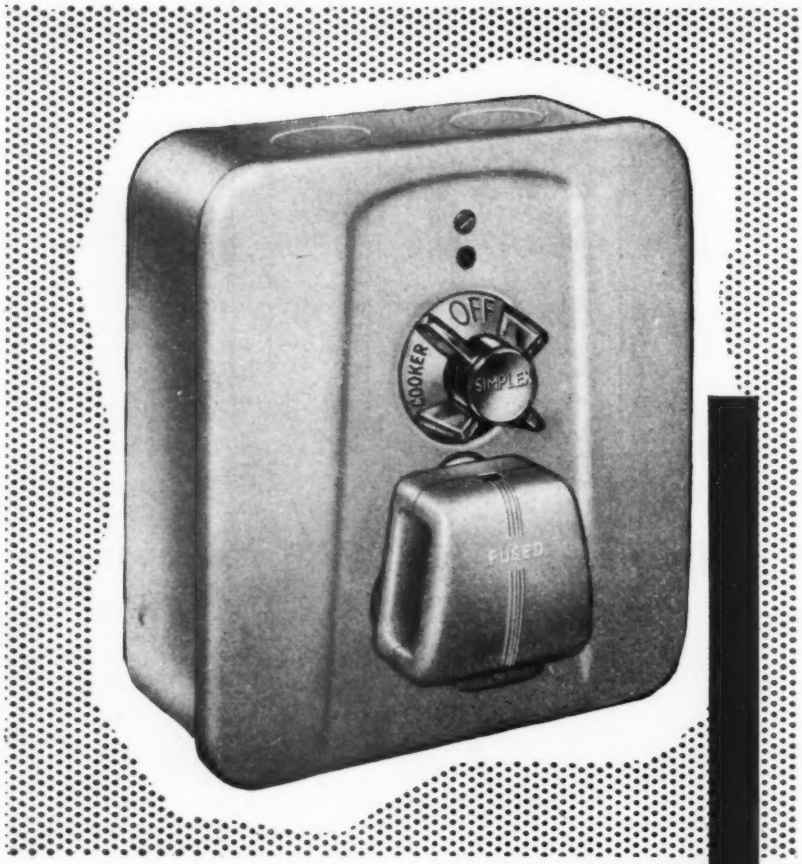
RADIATION DUCTAIR is more than just another central heating system. It offers a fully integrated service to architects and builders. Its aim is to raise comfort standards and to make possible the more efficient use both of fuels and building space.

DUCTAIR units (of all sizes, powered by Solid Fuel, Gas, or Oil) have been successfully installed in buildings of all kinds—from houses to shops, flats to schools, churches to pubs. Write to us about the sort of buildings that are of interest to you. We particularly welcome new problems—we've been solving them all our working lives.

DUCTED WARM AIR *systems offer all these advantages and, where required, hot water can be produced by utilising the heat of the appliance "when idling". There is clearly a strong case for warm air heating as such—but which particular system? We believe that* Radiation Ductair *is best able to answer your needs.*

Radiation DUCTAIR

RADIATION GROUP SALES LTD., WARM AIR DIVISION, 10 MORTIMER STREET, LONDON, W.1



Simplex leadership in domestic electric appliances is further exemplified by this Cooker Control Unit. It's a fine, clean, smoothly contoured job to B.S.1833 dimensions and attractively finished in cream or white as standard or any of the Creda matching colours.

The single rotary control, with four clearly defined positions, operates two independent switches for either individual or combined operation of cooker and auxiliary circuits. Pilot indicating lights are available if required.

Rating: Cooker Switch 30/45 *amp.*
Auxiliary Circuits 13 *or* 15 *amp*

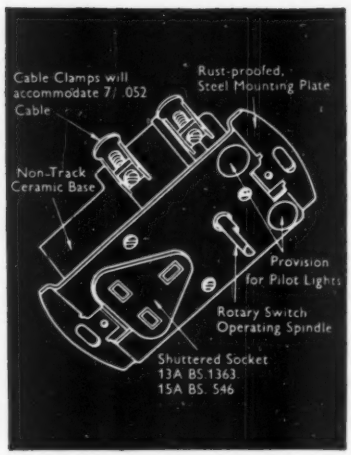
NEW — FROM SIMPLEX

AN ULTRA-SMART

COOKER CONTROL UNIT

AT OUTSTANDING AND

INCOMPARABLE VALUE



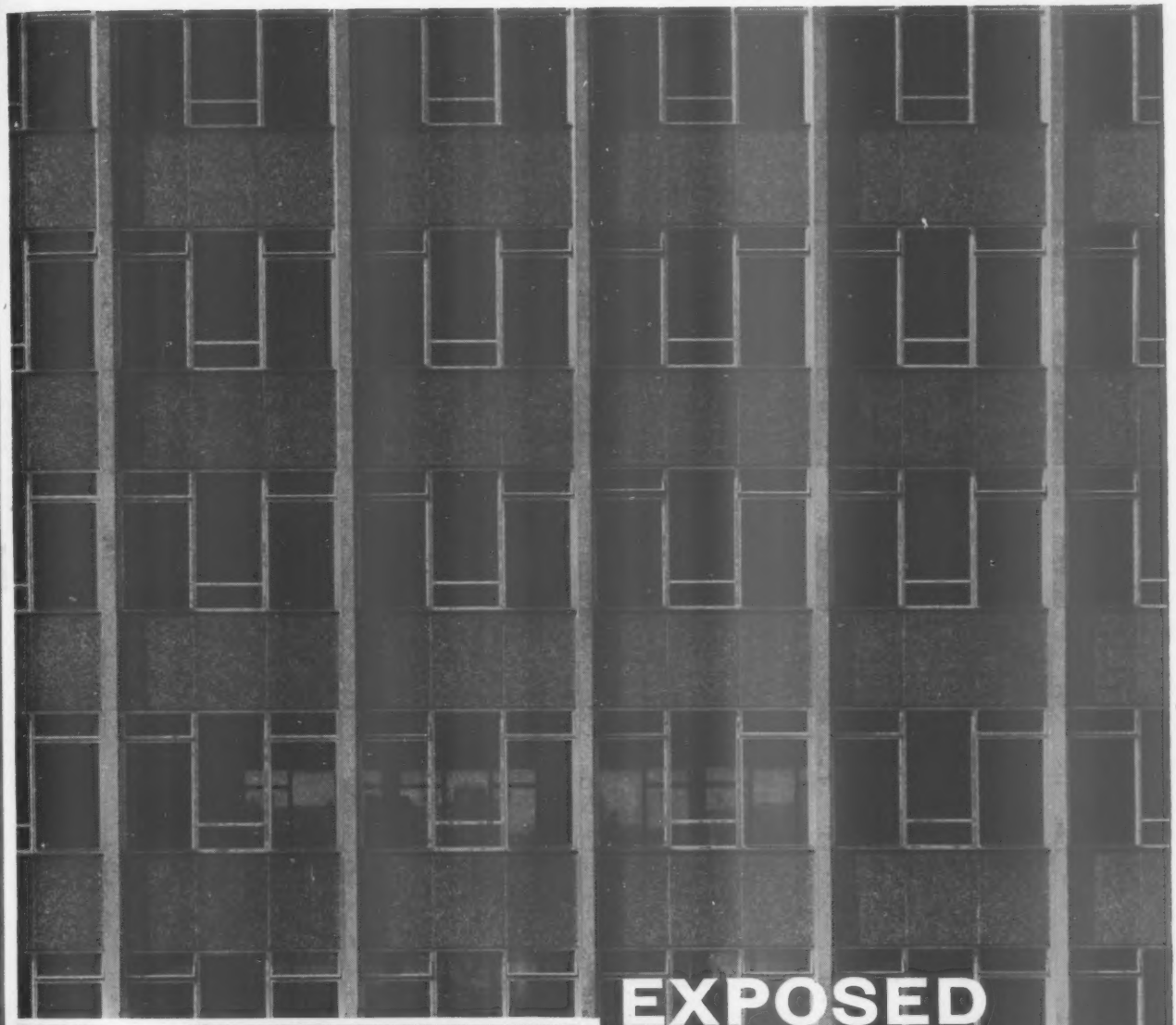
22/4^{D} 13A
(WITHOUT PLUG)
25/4^{D} 15A
(WITHOUT PLUG)
May we send you further details?

Simplex

Contact your nearest Simplex branch at
Alperton, Ashford, Belfast, Birmingham, Bristol, Cardiff, Edinburgh, Gateshead, Glasgow, Leeds, Leicester, Liverpool, Luton, London, Manchester, Norwich, Nottingham, Plymouth, Reading, Sheffield, Southampton.

A TI COMPANY

SIMPLEX ELECTRIC CO LTD · OLDBURY BIRMINGHAM





EXPOSED AGGREGATE CLADDING PANELS

as used on the imposing new business and shopping block under construction on Hampstead Road, N.W.1.

ARCHITECT: *Leslie C. Norton, A.I.A.A.*
CONSULTING ENGINEERS: *R. D. Ward & Partners*
CONTRACTORS: *Higgs & Hill Ltd*

ellis OF LEICESTER

Panels can be made in a variety of finishes and to specified sizes. Information sheets on request.

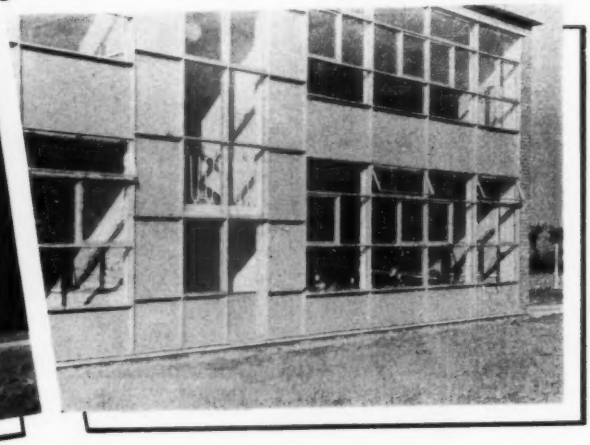
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BRIDGELITE
ALUMINIUM CURTAIN WALLING



Not until the right materials were available could advanced designers produce such modern devices as Turbines and Jet Propelled vehicles. So also has the modern Architect and Builder been limited, but here at last is the right material for future construction, that eliminates so many structural and weather resisting problems. It is a "must" for the progressive person to acquaint himself with this "BRIDGELITE" product.





Photograph of Unsworth County Primary School, Bury. By courtesy of Mr. R. H. Ogden, M.C., .T.D., M.Sc.Tech., Dip. T.P., Borough Engineer and Surveyor.

Bridgelite features include a condensation channel on all horizontal members with drainage to exterior of wall. Chamfered glazing beads which, irrespective of thickness of infilling panel, cover the majority, if not all, of the remaining upper surface of horizontal members,- thus eliminating potential rainwater reservoirs. Bridgelite will cover spans of 22′ 0″ using a 3′ 9″ module, but neither module nor span have predetermined fixed sizes. Within its limits the customer may specify any span, module or transom spacing he desires.

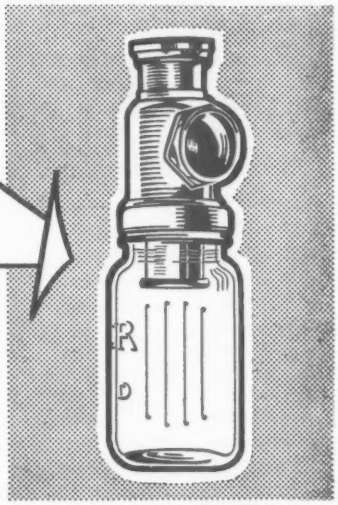


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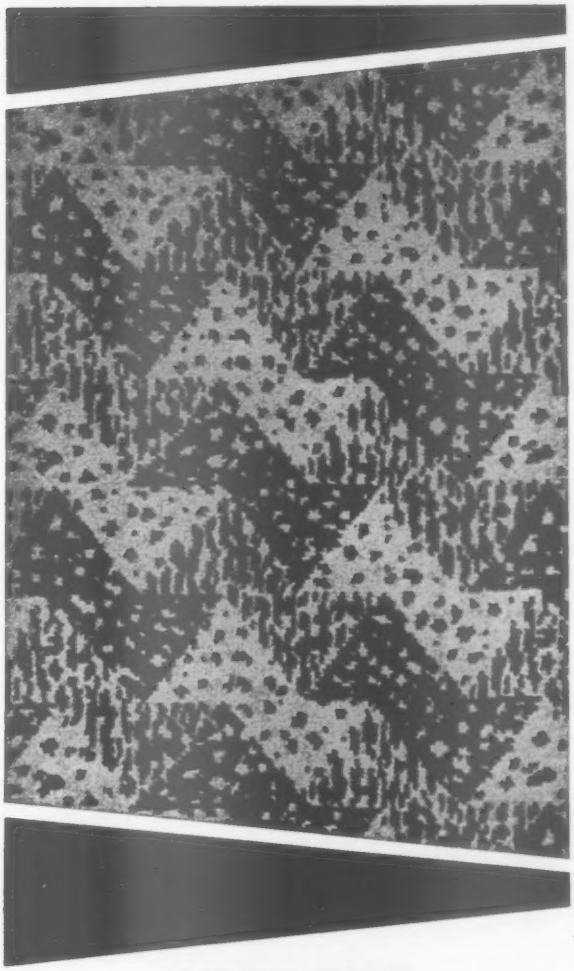
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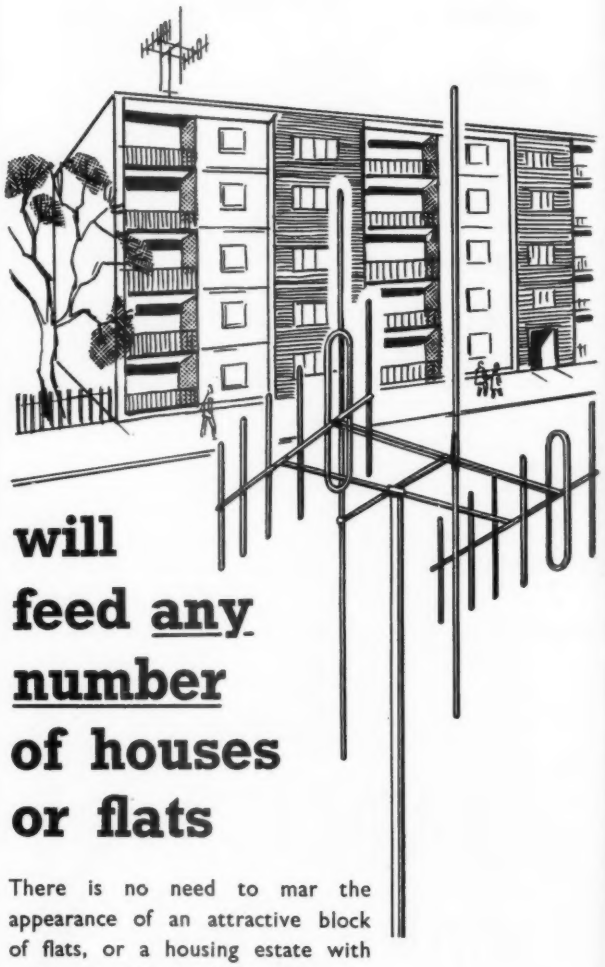
HAILED AS A MASTERPIECE when first published in 1950, this extensively revised edition brings the lessons of Swedish architecture up to date with new material gathered when the author re-visited Sweden late in 1956. This includes a thorough appraisal of the new town section of Stockholm, Vällingby, where an entire new 'city' for 23,000—completely planned from beginning to end—has evolved in the past decade: one of the finest urban expressions yet created, this offers many lessons for all contemporary planning.

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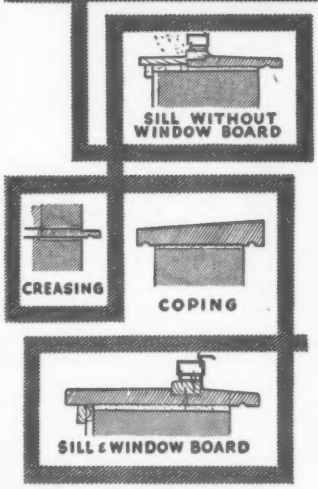
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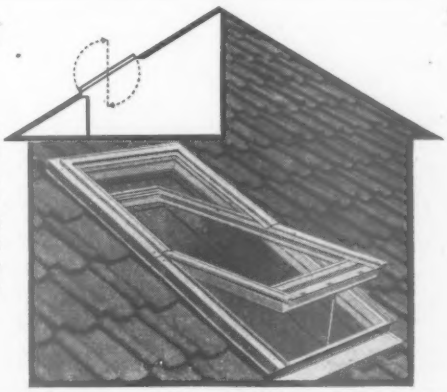
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Advertisements should be addressed to the Advt. Manager, "The Architects' Journal," 9, 11 and 13, Queen Anne's Gate, Westminster, S.W.1, and should reach there by first post on Friday morning for inclusion in the following Thursday's paper.

Replies to Box Numbers should be addressed care of "The Architects' Journal," at the address given above.

AIR-MAIL SERVICE available on request:
In response to requests from a number of Overseas subscribers for air-mail delivery of Public and Official Appointment details and Other Appointments Vacant, we have been pleased to arrange that cuttings of all such classified advertisements appearing in the A.J., shall be despatched by air-mail on Wednesday of each week (one day prior to A.J. publication date). The cost of this special service to Overseas subscribers will be 5s. for four weeks (1s. 3d. for each additional week) and prepayment should be sent by subscribers wishing to take advantage of this service. The charge we are making represents only the actual cost of the postage involved.

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NEWCASTLE REGIONAL HOSPITAL BOARD
REGIONAL ARCHITECT'S DEPARTMENT

During the next two years the Board plans to spend between £4m. and £5m. on hospital developments and larger programmes are being planned to follow. The present building programme includes a wide variety of projects, ranging from houses to hospitals, and (since a large hospital resembles a small town) affords ample opportunity for gaining both general and hospital experience simultaneously.

The following posts in the Regional Architect's Department are at present open to applicants. The salary-scales quoted include interim increases pending completion of a current Health Service review of salaries.

(i) ASSISTANT ARCHITECT. Salary £730 × £25 (2) × £30 (2) × £35 (5) × £40 (1)—£1,055.

Applicants should be registered architects and have had experience of the planning and construction of public buildings. The commencing salary will be fixed within the Grade by reference to relevant experience and to age.

(ii) ARCHITECTURAL ASSISTANT. Salary £545 at age 21 × £20 (3) × £25 (4) × £30 (2) to £765.

Applicants should have passed the Intermediate Examination of the R.I.B.A., or an examination recognised by the Institute as equivalent, and some practical experience is desirable.

The commencing salary within the Grade will depend upon the applicant's age and practical experience, but will not exceed £605.

(iii) ARCHITECTURAL DRAUGHTSMAN. Salary £445 × £25 (5) × £30 (3)—£660.

Applicants should have had previous experience in an architect's drawing office and be neat and quick draughtsmen.

Evening study facilities are available at King's College of Durham University in Newcastle.

Applications, stating age, qualifications, past and present appointments, present salary and details of experience and training, together with the names of three referees (of whom at least two should be architects), should be forwarded to the Secretary to the Board, Benfield Road, Newcastle upon Tyne, 6, not later than 5th March, 1959. 3106

AYCLIFFE DEVELOPMENT CORPORATION
(New Town and Newton Aycliffe)
APPOINTMENT OF QUANTITY SURVEYING ASSISTANT

Applications are invited for the above appointment at a salary in accordance with Grade A.P.T. I of the Whitley Council for New Towns Staff scale of salaries, *i.e.* £562 p.a. rising by four annual increments to a maximum of £647 p.a.

Applicants should be approaching the Intermediate standard of the R.I.C.S.

Appointment subject to N.J.C. Conditions, Superannuation and Medical Examination.

Housing accommodation if necessary.

Applications stating age, qualifications and experience together with the names of two referees to arrive not later than Wednesday, the 11th March, 1959.

A. V. WILLIAMS,
General Manager.

Newton Aycliffe,
Nr. Darlington,
Co. Durham. 3149

COUNTY BOROUGH OF ROTHERHAM
ARCHITECTURAL ASSISTANT

Architectural Assistant required for established post in Grade I (£575—£725) to Special Grade (£760—£1,030), the grade and commencing salary to be according to applicant's qualifications and experience.

Housing accommodation will be available, if necessary, for the higher grade appointment.

Applications, stating age, qualifications and experience, with the names of two referees, to be delivered to the Borough Engineer, Municipal Offices, Rotherham, not later than Thursday, 12th March, 1959.

JOHN S. WALL,
Town Clerk.

Municipal Offices,
Rotherham.
11th February, 1959. 3104

BOROUGH OF BURY ST. EDMUNDS
APPOINTMENT of

(*a*) ASSISTANT ARCHITECT—Special Grade £750—£1,030.

(*b*) JUNIOR ARCHITECTURAL ASSISTANT—Grade A.P.T.I. —£575—£725.

Applications are invited for the above appointments in the Department of the Borough Engineer and Surveyor. Duties will include the design of new houses and other buildings and supervision of the Direct Labour Organisation constructing Council Houses and other architectural works in connection with the maintenance and upkeep of Corporate property.

Consideration will be given to the provision of housing accommodation.

Applicants for post (*a*) should preferably be either Chartered or Registered Architects and applicants for post (*b*) should be probationers of the R.I.B.A., preferably with not less than two years' experience.

Applications, endorsed "Assistant Architect" or "Architectural Assistant," stating age, whether married, qualifications and experience, together with the names of two referees, to be delivered to the Borough Engineer and Surveyor, G. S. Standley, A.M.I.C.E., M.I.Mun.E., at the address below not later than Monday, 9th March, 1959.

RICHARD R. HILES,
Town Clerk.

Borough Offices,
Bury St. Edmunds. 3108

LONDON COUNTY COUNCIL
ARCHITECT'S DEPARTMENT

Applications are invited for appointment as PRINCIPAL HOUSING ARCHITECT, to be responsible to the architect for the Housing Division (total staff about 340), which is responsible for the design and erection of most of the Council's housing. Experience of public architecture is not essential but the person selected must be able to organise, lead and inspire a large division. Commencing salary according to qualifications and experience within scale £2,450—£100—£2,650 a year. The position is permanent and pensionable. Further particulars and application form from Clerk of the Council (CL/G), County Hall, London, S.E.1, returnable by 23 March, 1959. (332) 3109

COUNTY BOROUGH OF BLACKPOOL

Applications (by Friday, 6th March, 1959) are invited for the following posts in the Borough Surveyor's Department:—

ASSISTANT ARCHITECTS (Special Scale, £750/£1,030 per annum).

ARCHITECTURAL ASSISTANTS (A.P.T. I, £575/£725 per annum).

Application forms and particulars obtainable from the Borough Surveyor (Arthur Hamilton, A.R.I.B.A.), P.O. Box 17, Municipal Buildings, Blackpool.

ERNEST C. LEE,
Town Clerk.
3095

BEESTON AND STAPLEFORD URBAN DISTRICT COUNCIL
JUNIOR ARCHITECTURAL ASSISTANT

Applications are invited for the above appointment. Salary A.P.T. Grade I £575—£725. Commencing salary according to qualifications and experience.

Applications, accompanied by the names and addresses of two referees, should be forwarded to the Surveyor, Town Hall, Beeston, Nottingham, as soon as possible.

H. D. JEFFRIES,
Clerk of the Council.
3097

CAERNARVONSHIRE COUNTY COUNCIL
COUNTY PLANNING DEPARTMENT

Applications invited for the post of ASSISTANT PLANNING OFFICER APT. V (£1,175/£1,325). Commencing salary according to qualifications and experience. This appointment is next in status to that of Deputy County Planning Officer. Applicants must be corporate members of the Town Planning Institute and hold a recognised qualification in Architecture. Sound practical experience in all aspects of the work of a planning authority is required and experience in landscape architecture would be an advantage.

Further particulars and application forms from Clerk of County Council, Caernarvon. Closing date: 14th March, 1959. 3107

WARWICKSHIRE COUNTY COUNCIL
COUNTY PLANNING DEPARTMENT

Applications are invited for the following appointments:—

TWO PLANNING ASSISTANTS, Grade A.P.T. I/II (£575—£845 per annum).

The posts are in the Development Plan Section and the appointments are subject to the provisions of the Local Government Superannuation Act and to the National Scheme of Conditions of Service. Successful candidates will be required to pass a medical examination. Consideration will be given to the granting of financial assistance towards removal expenses.

Applicants must have passed the Intermediate Examination of a professional body, preferably that of the Town Planning Institute. Commencing salary will be according to experience.

Applications, together with the names of two referees, should be sent to J. J. Brooks, County Planning Officer, Northgate, Warwick, not later than Saturday, 7th March, 1959.

Canvassing will be a disqualification.

L. EDGAR STEPHENS,
Clerk of the Council.

Shire Hall,
Warwick. 3099

BIRMINGHAM REGIONAL HOSPITAL BOARD

ARCHITECTURAL ASSISTANTS required. Salary scale £545—£760 per annum. Point of entry according to experience. Intermediate R.I.B.A. essential. Superannuable. Apply, naming two referees, to Secretary, R.H.B., 10, Augustus Road, Birmingham, 15, by 13th March, 1959. 3098

COUNTY BOROUGH OF BLACKPOOL

Applications (by Friday, 6th March, 1959) are invited for the post of TOWN PLANNING ASSISTANT, A.P.T. IV (£1,025/£1,175 per annum) in the Borough Surveyor's Department.

Commencing salary will be fixed at any point within the grade in accordance with experience.

Application forms and particulars obtainable from the Borough Surveyor (Arthur Hamilton, B.Sc.), P.O. Box 17, Municipal Buildings, Blackpool.

ERNEST C. LEE,
Town Clerk.
3096

ARCHITECTURAL ASSISTANTS
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Starting pay according to age, qualifications and experience. Good prospects of promotion with salaries of £1,015 p.a. and above.

Opportunities for permanent posts leading to pensions (non contributory).

Interviews at Regional Offices where possible. Applicants should be of Intermediate R.I.B.A. standard. State age, training and experience to Chief Architect, Ministry of Works, Room 435, Abell House, John Islip Street, S.W.1. 3444

SURREY COUNTY COUNCIL

Applications invited for appointment of ASSISTANT ARCHITECT, Special Grade, £750—£1,030 p.a. plus £30 p.a. London Allowance. Must be A.R.I.B.A.

Full details, present salary and three copy testimonials to County Architect, County Hall, Kingston, as soon as possible. 3029

LONDON COUNTY COUNCIL
ARCHITECT'S DEPARTMENT

Vacancies for ARCHITECTURAL ASSISTANTS, starting salary up to £860. Full and interesting programme of houses, flats, schools and general buildings.

Application form and particulars from The Architect to the Council, County Hall, S.E.1, quoting AR/EK/14/59 (256). 3040

SEDGEFIELD RURAL DISTRICT COUNCIL
HOUSING ARCHITECT'S DEPARTMENT

Applications are invited for the post of TECHNICAL ASSISTANT, salary on A.P.T. Grade II. Housing accommodation will be available.

Further particulars may be obtained from me. Closing date: 2nd March, 1959.

R. P. BURTON,
Clerk of the Council.

Sedgefield,
Stockton-on-Tees.
9th February, 1959. 3054

LONDON COUNTY COUNCIL
ARCHITECT'S DEPARTMENT

Vacancies for ARCHITECT/PLANNERS. Tasks include three-dimensional planning within London's eight major Comprehensive Development Areas (including Stepney/Poplar, South Bank and Elephant and Castle) and other Redevelopment Areas. Work includes preparation of comprehensive layouts for all important areas of new development throughout the County including areas to be redeveloped in connection with road improvements.

Starting salaries up to £860 according to experience and qualifications. Application forms and particulars obtainable from Hubert Bennett, F.R.I.B.A., Architect to Council (Ref. AR/EK/7/59). County Hall, London, S.E.1. (146) 2804

QUANTITY SURVEYING ASSISTANTS required by AIR MINISTRY in LONDON and PROVINCES. Duties include abstracting and billing, site measurement and preparation of estimates. Commencing salary according to age, qualifications and experience. Salary ranges in London £695 at age 26 rising to £870 for candidates holding O.N.C. (Building) or (Builders Quantities) or equivalent, and good experience under Quantity Surveyor or Building Contractor. Knowledge of W.D. schedule an advantage. Approved full time study will count towards period of experience. Salaries somewhat lower in Provinces. Promotion and pensionable prospects. Five-day week, three weeks leave a year. Appointments carry liability for service anywhere U.K. or overseas. Applicants normally should be natural born British subjects. Write stating age, qualifications and previous appointments including type of work done, to Manager, Professional and Executive Register, Ministry of Labour and National Service, Atlantic House, Farringdon Street, E.C.4, quoting reference PE 105/745. No original testimonials should be sent. Only applicants selected for interview will be advised. 3024

DRAUGHTSMEN (2) required for Railway Estate Office. Experience desirable but not essential. Salary based on scale according to age, maximum £763 per annum with prospects of advancement. Apply in writing to: Estate & Rating Surveyor, British Railways, Western Region, 125, Westbourne Terrace, Paddington, London, W.2. 3122

FIFE COUNTY COUNCIL
COUNTY ARCHITECT'S DEPARTMENT

Applications are invited for appointments as:—
(*a*) SENIOR ASSISTANT ARCHITECTS.
(*b*) ASSISTANT ARCHITECTS.
(*c*) ARCHITECTURAL DRAUGHTSMEN.
(*d*) QUANTITY SURVEYORS.

Applicants for (*a*) and (*b*) must be Associates of the R.I.B.A. and have contemporary outlook in design and use of modern materials and techniques. Applicants for (*a*) in addition must have experience of school work, both new buildings and large extensions and modernisations, while those for (*b*) should preferably have experience in educational work. Applicants for (*c*) must be quick and accurate with experience in architect's and drawing office routine. Applicants for (*d*) must be A.R.I.C.S. or, alternatively, be sitting Final examination of R.I.C.S. in March, 1959. Salaries in accordance with experience and qualifications on appropriate grades, the minimum of which shall not be less than £1,050 for Senior Assistant Architects, £945 for Assistant Architects, £625 for Architectural Draughtsmen and £880 for Quantity Surveyors. Housing accommodation may be available. Superannuation Scheme. Applications stating age, qualifications, post held and previous experience with details of present salary and accompanied by copies of recent testimonials, to the undersigned by 19th March, 1959. No canvassing.

MATTHEW POLLOCK,
County Clerk.

County Buildings,
Cupar,
Fife.
21st February, 1959. 3175

ARMAGH COUNTY COUNCIL
PLANNING ASSISTANT

Applications are invited for the post of Planning (Architectural) Assistant in the County Planning Department in Armagh for which the salary will be on the scale for A.P.T. Grade II (£725 × £30—£845). A flat may be made available at a nominal rent.

Applicants should have passed the Intermediate examination of the R.I.B.A. and have had approved training in an Architect's Office, including site and estate planning for building development.

Applications should be made on the form obtainable from Mr. J. D. Gordon, B.Sc., A.R.I.B.A., M.T.P.I., County Planning Officer, 10, Abbey Street, Armagh, and must be delivered to the undersigned not later than the 18th March, 1959.

H. W. F. REID,
Secretary to County Council.

1, Charlemont Place,
Armagh.
19th February, 1959. 3147

CITY OF LIVERPOOL
EDUCATION COMMITTEE
COLLEGE OF BUILDING

Applications are invited for the following appointments (full-time), duties to commence 1st September, 1959:—

(*a*) TWO LECTURERS to teach subjects of the R.I.B.A. Examinations in sandwich and part-time Architecture courses. Applicants should have a University degree in Architecture and/or Associateship of the Royal Institute of British Architects. For one of these appointments a teacher with qualifications and interest in building science is sought.

(*b*) LECTURER to teach subjects up to the standard of the Final Examinations of the R.I.C.S. and I.Q.S. in full-time and part-time Surveying courses. Applicants must hold Associateship of the R.I.C.S. (Quantity Surveying Section).

(*c*) LECTURER for Liberal Studies who will be expected to assume responsibility for the organising and teaching of Social Studies appropriate to courses in Architecture, Building and Civil Engineering. University degree essential.

For (*a*) and (*b*) appropriate professional or industrial experience is essential and teaching experience desirable. For (*c*) teacher training and teaching experience are essential.

Salaries: (Men) £1,200 × £30 to £1,350 per annum + 5 per cent. (Plus equal pay increments). (Women) £960 × £24 to £1,080 per annum + 5 per cent. (1956 Burnham Technical Report). Commencing salaries on these scales may be assessed according to previous industrial or professional experience.

Further particulars and application forms (returnable by 21st March, 1959) from H. S. Magnay, M.A., Director of Education, 14, Sir Thomas Street, Liverpool, 1.

THOMAS ALKER,
Town Clerk and Clerk to the Local Education Authority.

(J.5532) 3162

CITY OF PORTSMOUTH
CITY DEVELOPMENT DEPARTMENT

Applications are invited for an appointment as DEVELOPMENT ASSISTANT (TOWN PLANNING) on the Technical Staff of the City Development Department. The salary is A.P.T. Grade I (£575—£725 per annum).

Applications stating age, present position, qualifications and experience, together with names of two referees, must be delivered to the City Development Officer, 1, Western Parade, Portsmouth, not later than Monday, the 9th March, 1959.

V. BLANCHARD,
Town Clerk.
3129

PADDINGTON BOROUGH COUNCIL

Require BUILDING SURVEYING ASSISTANT (A.P.T. I—£605 to £755 per annum). Candidates should have practical knowledge of building construction, experience in surveying and levelling, the repair, adaptation and conversion of civic and residential properties, and be capable of preparing plans, specifications and estimates of costs in respect of those works and their supervision. Candidates preferred at advanced stage of preparation for R.I.C.S. Intermediate or equivalent examination. Written applications stating age, qualifications, experience and names and addresses of three referees should reach the under-signed (quoting A.402) by 2nd March, 1959.

W. H. BENTLEY,
Town Clerk.

Town Hall,
Paddington Green, W.2. 3125

NORTHERN IRELAND HOUSING TRUST
ASSISTANT ARCHITECTS

The Trust has vacancies for Assistant Architects on scales ranging from £873—£1,158. Placing will be in accordance with qualifications and experience.

The persons appointed will be required to participate in a contributory superannuation scheme which allows for the reciprocal transfer of benefits in Local Government Schemes.

Assistance in obtaining housing accommodation may be given to successful married candidates.

Applicants should apply, by Wednesday, 4th March, 1959, giving full details of age, qualifications and experience, including present post and salary, to the General Manager, Northern Ireland Housing Trust, 12 Hope Street, Belfast.

Please mark envelope 33/70. 3166

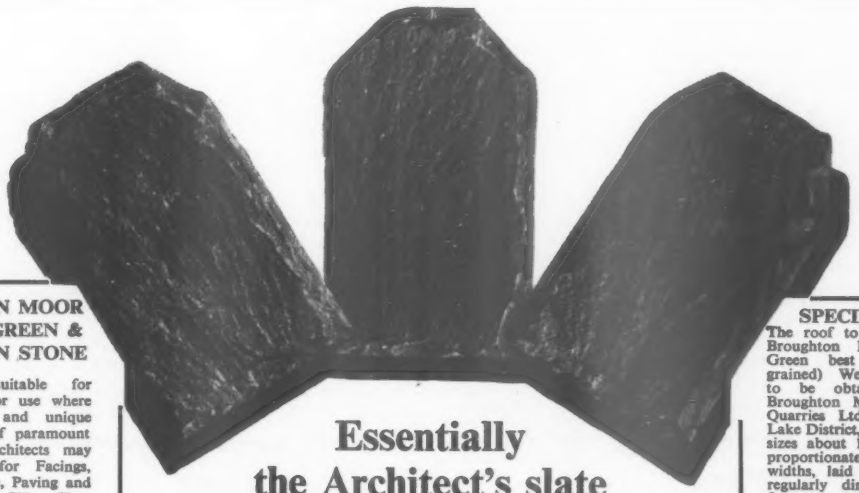
DERBYSHIRE COUNTY COUNCIL
COUNTY ARCHITECT'S DEPARTMENT

QUANTITY SURVEYORS. Two vacancies exist for Quantity Surveyors, salary £1,175 × £50 to £1,325 per annum. Applicants must be Associates of the Royal Institution of Chartered Surveyors. National Joint Council Conditions of Service. Pensionable posts. Canvassing disqualifies. Application forms from The County Architect, County Offices, Matlock, to whom they should be returned by 23rd March, 1959. 3169

BERKSHIRE COUNTY COUNCIL

ASSISTANT QUANTITY SURVEYOR. Special Grade (£750—£1,030). Applicants should be capable of taking off for large projects, and preference will be given to Associates of the R.I.C.S.

Application forms and further particulars can be obtained from J. T. Castle A.R.I.B.A., A.M.T.P.I., County Architect, Wilton House, Parkside Road, Reading, to whom they should be returned not later than Tuesday, 10th March, 1959. 3156



BROUGHTON MOOR LIGHT SEA GREEN & OLIVE GREEN STONE

Is eminently suitable for interior or exterior use where great durability and unique appearance are of paramount importance. Architects may specify its use for Facings, Foundation Stones, Paving and Flooring, Steps, Cills, Shop Fronts, Surrounds, Pilasters, Fireplaces, etc. Ask for these Technical Pamphlets:—

1. Floorings.
2. Facings.
3. Coping.
4. Cills.
5. Riven Face Slabs.

Essentially the Architect's slate

Here is the perfect medium for the practical expression of every Architect's dream of the ideal roof. Rock-hard and of picturesquely rugged texture Broughton Moor Slates will remain sound for centuries, needing no periodical maintenance. They are a delight to the eye and enhance the appearance of even the plainest edifice. Prices and samples gladly supplied.

SPECIFICATION

The roof to be covered with Broughton Moor Light Sea Green best quality (coarse grained) Westmorland Slates, to be obtained from The Broughton Moor Green Slate Quarries Ltd., Coniston, The Lake District, Lancs., in random sizes about 18in. to 9in. long, proportionate and random widths, laid to a 3in. lap in regularly diminishing courses, from eaves to ridge. Each slate to be securely fixed by two stout copper nails and wide slates are to be used on the hips and verges. *Alternatives:* Seconds, Thirds, Special Peggies; Olive Green and Mixed Shades. Larger sizes also available. *Ridging:* "Bromoor" purpose made of crushed and moulded slate from the same veins is recommended.

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BOROUGH OF EDMONTON
BOROUGH ARCHITECT'S DEPARTMENT
ARCHITECTURAL ASSISTANT (temporary) required. Work includes interesting redevelopment schemes involving multi-storey flats. Unique opportunity to gain valuable experience of unified control of building work in direct labour organisation responsible for all facets of building with special regard to the integration of contemporary design with up-to-date mechanised building methods.

Grade A.P.T. II, £725 × £30—£845, plus £10/£30 London weighting according to age. Minimum qualification Intermediate R.I.B.A. or equivalent, for which maximum of grade will be paid to suitable applicant.

Five-day week. Time off and financial assistance for studies.

Applications must be made on forms obtainable from the Town Clerk, Town Hall, Edmonton. Closing date 7th March, 1959. 3143

CITY AND COUNTY OF NEWCASTLE UPON TYNE
CITY ARCHITECT'S DEPARTMENT

Consequent upon revisions to the Establishment of his Department, the City Architect will be pleased to receive applications from suitably qualified persons for the following Architectural and Quantity Surveying vacancies:—

GENERAL SECTION: A.P.T. V; A.P.T. IV; Special Class, and A.P.T. II.
EDUCATION SECTION: A.P.T. V; A.P.T. IV; and A.P.T. II.
HOUSING SECTION: A.P.T. IV; Special Class; A.P.T. II and A.P.T. I.
RE-HOUSING SECTION: A.P.T. IV; Special Class; and A.P.T. II.
QUANTITY SURVEYING SECTION: Scale "B"; A.P.T. V; and A.P.T. IV.

The salaries applicable to the above Grades are:—

Scale "B": £1,210—£1,440 per annum (subject to the recent award of the Industrial Court).
A.P.T. V: £1,175—£1,325 per annum.
A.P.T. IV: £1,025—£1,175 per annum.
Special Class: £750—£1,030 per annum.
A.P.T. II: £725—£845 per annum.
A.P.T. I: £575—£725 per annum.

The Department is engaged upon an interesting and varied programme of work, including Multi-Storey Flats, Re-Development Schemes, Further Education projects, and a variety of General building works.

Application Forms and full particulars may be obtained from George Kenyon, A.R.I.B.A., A.M.T.P.I., City Architect, 18, Cloth Market, Newcastle upon Tyne, 1. Applicants must state the Section and Grade applied for when requesting particulars.

Closing date for receipt of completed applications: Monday, 16th March, 1959.

JOHN ATKINSON,
Town Clerk.

Town Hall,
Newcastle upon Tyne, 1.
19th February, 1959. 3160

BOROUGH OF MORLEY
HOUSING COMMITTEE
APPOINTMENT OF ARCHITECTURAL ASSISTANT

Applications are invited for the position of Architectural Assistant in the Borough Engineer's Department, salary Grade A.P.T. II (£725—£845). Previous Local Government experience not essential, but applicants must hold the Intermediate Examination of the Royal Institute of British Architects.

The appointment is subject to the National Scheme of Service and Local Government Superannuation Act 1937, and to the successful candidate passing a medical examination.

Consideration will be given to the provision of a house if required.

Applications, stating age, qualification and experience together with two recent testimonials, and endorsed "Architectural Assistant," to be delivered to the Borough Engineer, Town Hall, Morley, not later than Monday, 9th March, 1959.

E. V. FINNIGAN,
Town Clerk.

Town Hall,
Morley. 3145

BOROUGH OF GILLINGHAM
APPOINTMENT OF ARCHITECTURAL STAFF
BOROUGH ENGINEER'S DEPARTMENT

Applications are invited for the under-mentioned appointments:—

TWO SENIOR ASSISTANT ARCHITECTS, Special Scale (£750—£1,030).

Commencing salaries of persons appointed according to qualifications and experience. Applicants to be A.R.I.B.A. and should have experience of housing and school work.

The posts are superannuable and the National Conditions of Service will apply.

Application forms may be obtained from the Borough Engineer, Municipal Buildings, Gillingham, Kent. The latest date for the receipt of completed applications is Monday, the 16th March, 1959.

FRANK HILL,
Town Clerk.

Municipal Buildings,
Gillingham,
Kent.
24th February, 1959. 3171

ADMINISTRATIVE COUNTY OF LEICESTER

(*a*) ASSISTANT ARCHITECT, £750—£1,030.
(*b*) ARCHITECTURAL ASSISTANT, £725—£845, according to experience. Candidates for (*a*) must have passed Parts I & II of the R.I.B.A. Examination, have had office experience and be capable of taking charge of small contracts; for (*b*) have passed Part I of the R.I.B.A. Examination, have had office experience and be capable of executing working drawings. Lodging allowance and removal expenses may be paid to a married man. Apply by 13th March on forms obtainable from County Architect, 123 London Road, Leicester. 3150

CITY OF LEICESTER
CITY ARCHITECT'S DEPARTMENT
QUALIFIED ARCHITECTS with enthusiasm for Education work are required for the following posts:—

(*a*) CHIEF ASSISTANT ARCHITECT, Grade "A", £1,190/£1,390, the commencing salary according to experience.
(*b*) ASSISTANT ARCHITECT, Grade A.P.T. IV, £1,025/£1,175.
(*c*) ASSISTANT ARCHITECTS, Special Grade, £750/£1,030.

Previous Local Government experience not essential.

Appointments will be subject to the National Scheme of Conditions of Service, passing a medical examination and one month's notice on either side.

Applications, stating post applied for, together with names of two referees, should reach the undersigned not later than Thursday, 12th March, 1959.

J. H. LLOYD OWEN,
City Architect.

10, Loseby Lane,
Leicester. 3163

BOROUGH OF STRATFORD-UPON-AVON
APPOINTMENT OF SENIOR ASSISTANT ARCHITECT

Applications are invited for the above appointment at a salary in accordance with A.P.T. Grade IV (£1,025—£1,175). Candidates must be Registered Architects, preferably with previous Local Government experience.

The appointment will be subject to the National Scheme of Conditions of Service of Local Government Officers, to the provisions of the Local Government Superannuation Acts, and to the successful candidate passing satisfactorily a medical examination. The appointment will be terminable by one month's notice on either side.

The Council will, if necessary, be prepared to consider the provision of housing accommodation.

Forms of application may be obtained from the undersigned to whom completed forms should be returned not later than Thursday, 12th March, 1959.

P. C. SMART, M.I.C.E.,
Borough Engineer & Surveyor.

Borough Engineer's Department,
Municipal Offices,
Stratford-upon-Avon.
18th February, 1959. 3168

COUNTY BOROUGH OF CROYDON
ARCHITECTURAL ASSISTANTS

Applications are invited for appointments on general architectural work within the following grades:—

A.P.T. I: £595 to £755 p.a. including London weighting.
A.P.T. II: £745 to £875 p.a. including London weighting, rising when fully qualified to £1,060 p.a. (incl.).

Salary commencing according to qualifications and experience. Applicants for the higher appointments should have passed the R.I.B.A. Intermediate Examination.

Further particulars and application form from the Borough Engineer, Town Hall, Croydon. Closing date, 16th March, 1959.

E. TABERNER,
Town Clerk.
3166

BOROUGH OF EALING
ARCHITECTURAL ASSISTANT required, salary within scale £780—£1,060 inclusive. Must hold recognised Architectural qualifications.

Full particulars and application form from Borough Engineer, Town Hall, Ealing, W.5. Closing date 16th March, 1959.

E. J. COPE-BROWN,
Town Clerk.

Town Hall,
Ealing, W.5. 3151

CITY OF NORWICH
CITY ARCHITECT'S DEPARTMENT
ASSISTANT ARCHITECT required on permanent staff, salary within Special Grade (£750 × £40 to £1,030).

Application forms obtainable from the City Architect, City Hall, Norwich, must be returned by 5 p.m. March 9th. 3170

COUNTY BOROUGH OF DERBY
BOROUGH ARCHITECT'S DEPARTMENT

(*a*) SENIOR ASSISTANT ARCHITECTS, Special Grade (£750—£1,030 per annum). Qualifications: A.R.I.B.A.
(*b*) ASSISTANT ARCHITECT, A.P.T. Grade I (£575—£725 per annum). Qualifications: Intermediate R.I.B.A.

Commencing salary according to qualifications and experience.

Permanent superannuable appointments, subject to one month's notice and to medical examination. National Conditions of Service.

Application forms obtainable from and to be returned to the Borough Architect, The Council House, Corporation Street, Derby, not later than Monday, 9th March, 1959.

G. H. EMLYN JONES,
Town Clerk.
13th February, 1959. 3139

METROPOLITAN BOROUGH OF WANDSWORTH
SENIOR ASSISTANT ARCHITECT

Applications invited for this post. Grade A.P.T. IV—£1,055 rising to £1,205. Applicants must be Associates of the R.I.B.A. with experience in design and planning of multi-storey blocks of flats and supervision of their erection. Forms from the Borough Engineer must reach me by 11th March.

R. H. JERMAN,
Town Clerk.

Municipal Buildings,
Wandsworth, S.W.18. 3148

COUNTY BOROUGH OF EAST HAM
BOROUGH ENGINEER'S DEPARTMENT

Applications are invited for the following temporary appointments:—

SENIOR ASSISTANT ARCHITECT, Grade IV (£1,025—£1,175).
ARCHITECTURAL ASSISTANT, Grade II (£725—£845).

London weighting is paid in addition, and salaries in excess of the minima may be paid according to qualifications and experience. The appointments are for work on a new Technical College and are expected to be for a period of not less than three years.

Further details and application forms returnable by 13th March, 1959, from the Town Clerk, Town Hall, East Ham, E.6. 3170



PAVE THE WAY FOR HARDER WEAR

For factory and other floors exposed to heavy traffic, impact and corrosion, Accrington 'Nori' Paving Bricks may be specified with the utmost confidence. Made from the same material as the famous Accrington Engineering Bricks. Samples on request.

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DEPARTMENT OF ARCHITECTURE, SURVEYING AND BUILDING

The School of Architecture offers a five-year full-time course leading to the Final Examination of the Royal Institute of British Architects. Students successfully completing the first three years of the course obtain exemption from the Intermediate examination of the aforementioned Institute.

The portfolio of work completed during the final two years of the course is accepted by the Royal Institute of British Architects in lieu of the Testimonies of Study.

The College has established a list of approved students' lodgings in the County Borough of Southend-on-Sea. The arrangements for the placing of students in these lodgings are made by the Welfare Officer Supervisor of Student Lodgings.

Further details and forms of application for admission to the five-year full-time course may be obtained from J. M. Scott, B.Arch., F.R.I.B.A., Head of Department of Architecture, Surveying and Building, Municipal College, Victoria Circus, Southend-on-Sea.

D. B. BARTLETT, M.A.,
Chief Education Officer.

4th February, 1959. 3190

NORTH-EASTERN REGIONAL HOSPITAL BOARD, SCOTLAND
REGIONAL ARCHITECT'S DEPARTMENT

Applications are invited for the following posts:—

(*a*) ONE ASSISTANT ARCHITECT: Salary £700 to £1,015.

(*b*) THREE ARCHITECTURAL ASSISTANTS: Salary £525 to £730.

In each case the salary is subject to a 6 per cent. deduction for superannuation, but the salary may be fixed within each Grade by reference to relevant experience and age.

In addition to its normal Building Programme, the Department is concerned with the planning and execution of a number of major hospital projects, and the posts offer ample opportunity to gain first class general and hospital experience.

Applicants for post (*a*) should be registered Architects having practical experience of the design, planning and construction of public buildings.

Applicants for posts (*b*) should preferably be registered Architects having a sound practical training in design and construction.

Applications, stating age, qualifications, past and present appointments, training and experience, together with the names of two referees, should be forwarded to The Secretary of the Board, P.O. Box 28, 1, Albyn Place, Aberdeen, not later than 20th March, 1959. 3188

CITY OF STOKE-ON-TRENT
CITY ARCHITECT'S DEPARTMENT

Vacancies for ASSISTANT ARCHITECTS, Special Scale (£750—£1,030).

Applicants must have passed Parts I and II of the R.I.B.A. Final Examination or Special Final or their equivalent at a recognized School of Architecture.

Applications, stating date of birth, particulars of training, qualifications, experience and present position, should be forwarded to J. R. PIGGOTT, T.D., F.R.I.B.A., City Architect, Kingsway, Stoke-on-Trent, by 5th March, 1959.

HARRY TAYLOR,
Town Clerk.

3180

GOVERNMENT OF JAMAICA
SENIOR ARCHITECT, TOWN PLANNING DEPARTMENT

To work with other qualified planners on problems of Town and Country planning.

Contract appointment for one tour of three years. Salary range £1,400—£1,600 a year. Gratuity 20 per cent. of salary. Generous home leave. House provided at moderate rent.

Candidates must be A.R.I.B.A. and preferably also A.M.T.P.I.

Write to Director of Recruitment, Colonial Office, London, S.W.1, giving age, qualifications and experience quoting BCD 62/32/01. 3185

GOVERNMENT OF ADEN
ARCHITECT, PUBLIC WORKS DEPARTMENT

Required to design, prepare specifications and supervise construction of public buildings, housing and modern schools.

Contract appointment for one tour of 18-24 months.

Salary range £1,232—£2,004 per annum plus gratuity.

Free passages. Children's allowances. Furnished quarters at moderate rent. Generous home leave.

Candidates must be A.R.I.B.A. with at least one year's post qualification experience.

Write Director of Recruitment, Colonial Office, London, S.W.1, stating briefly age, qualifications and experience quoting BCD.112/2/03. 3186

METROPOLITAN BOROUGH OF FULHAM
TWO ASSISTANT ARCHITECTS

Borough Architect's and Housing Department. A.P.T. II, £725/£845 plus London weighting £20/£30 p.a. according to age. Two years' office experience and R.I.B.A. Intermediate. Multi-storey housing experience an advantage. Five-day week. Application forms from Town Clerk, Town Hall, S.W.6. Closing date 11th March. 3138

CITY OF CARDIFF
CITY ARCHITECT'S DEPARTMENT

Applications are invited for the following appointment:—

ASSISTANT ARCHITECT, Special Grade, £750—£1,030 per annum.

Candidates should possess the minimum qualifications and experience prescribed by the National Joint Council for Local Authorities' A.P.T. and C. Services for posts in the above-mentioned grade.

General Conditions of Appointment may be obtained from the undersigned.

Applications accompanied by the names and addresses of two referees and endorsed "Assistant Architect—Special Grade," must be delivered to me not later than the 16th March, 1959.

S. TAPPER-JONES.
Town Clerk.

City Hall,
Cardiff.
February, 1959. 3173

Architectural Appointments Vacant

4 lines or under, 9s. 6d.; each additional line, 2s. 6d. Box Number, including forwarding replies, 2s. extra

WILL any JUNIOR ASSISTANT who prefers to work in a small Private Office, and is interested in the preservation of Historic Buildings, please apply to L. H. Bond & R. W. Read, 44, Castlegate, Grantham. 2553

ASSISTANT required in busy West End practice, about 25 years of age and R.I.B.A. Intermediate standard. Good opportunities for taking responsibility. Please write giving details of experience and salary required. Box 2580.

ARCHITECTURAL ASSISTANTS of Senior and Intermediate standard required for varied and interesting programme of work. Experience in contemporary design and construction essential. Salary by arrangement. Applications giving full details of experience to Cruickshank & Seward, F.R.I.B.A., 196, Deansgate, Manchester 3. 2853

A HIGHLY QUALIFIED CHIEF ASSISTANT required for a busy West End London Office. He will have to take full responsibility for the administration and must be a first-class designer in the contemporary manner. Applicants should preferably be between the ages of 30 and 40 years and should give concise details of previous experience. Salary £1,500, subject to experience and qualifications. Apply Box 3068.

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SPECIFICATION 1959

***Editor*, F.R.S. YORKE, F.R.I.B.A.**



THE 1959 EDITION of this unique complete guide to the writing of building specifications, long acclaimed as the standard work covering all sections of the building industry, has been scrupulously revised throughout and now runs to 1,458 pages (1,404 pages in 1958, 1,334 in 1956). Model specification clauses are included in many of the sections, and the general arrangement is that laid down by the British Standards Specification for the sequence of trade headings in specifications.

This year the biggest revision is in *Carpenter and Joiner:* a new sub-section, 'Timber Engineering,' is contributed by D. W. Cooper, B.SC., A.M.I.STRUCT.E., F.INST.W.SC. Types of plywood are more fully described by I. D. G. Lee, B.SC. (ENG.), A.INST.W.SC., and a T.D.A. table of the main types of plywood, blockboard and laminated board is included. John Stillman and John Eastwick-Field, A./A.R.I.B.A., have re-arranged the specification clauses and re-written the matter about timber seasoning, and F. D. Silvester of T.D.A. has revised the introduction. The *Curtain Walling* section is extended to include some systems of timber construction and new steel and aluminium systems. *Plumber, Sanitary Engineer and Water Supply* is enlarged and more fully illustrated. Other sections substantially altered and enlarged include: *Roofer; Preliminaries· Electrical Engineer; Piling; Shop Equipment;* and *Building, Equipment*, which is now more appropriately re-named *Specialist Work.*

In each of its 39 sections will be found not only full details of the established methods of building construction but also the latest information about the constantly changing and ever-increasing number of proprietary systems and materials.

You are urged to place your order now for the 1959 edition. Price 35s. net, postage 3s. 3d. inland (6s. 4d. abroad).

THE ARCHITECTURAL PRESS, 9-13 Queen Anne's Gate, Westminster, S.W.1

ARCHITECT'S ASSISTANT required for the London Office of a firm of Architects with interests throughout the country. Must be of Intermediate R.I.B.A. or R.I.C.S. standard. Superannuation scheme. Apply to: Cotton, Ballard & Blow, 5, Baker Street, London, W.1. WELbeck 3364. 2818

ASSISTANT required in small busy office, good knowledge of construction and administration essential; must be quick draughtsman with experience of working drawings. Five-day week. Salary according to experience. Apply J. H. Alleyn, F.R.I.B.A., 1a, Berners Street, London, W.1. Langham 8457. 2993

EXPERIENCED ARCHITECTURAL ASSISTANTS required with a good sense of design and a sound knowledge of building construction. All applications in writing, please, with full details. C. H. Elsom and Partners, 10, Lower Grosvenor Place, S.W.1. 2994

ARCHITECTURAL ASSISTANTS for University and Hospital work. Good salary, dependent on experience. Non-contributory Pension Scheme in being after probationary period. Three weeks holiday a year, and five-day week. Reply, stating age, experience, etc., to: Thomas Worthington & Sons, 178, Oxford Road, Manchester, 13. 2987

LOUIS DE SOISSONS, PEACOCK, HODGES & ROBERTSON have immediate vacancies for SENIOR and JUNIOR ASSISTANTS. Write, stating age, salary and experience, to the above at 3, Park Square Mews, Upper Harley Street, London, N.W.1. 3003

LEADING Firm of Building Surveyors (City of London) requires JUNIOR ASSISTANT for Architect's Department. Must be well educated and keen to progress in profession. Salary according to ability. Box 2900.

ASSISTANT ARCHITECTS for Co-operative Wholesale Society Ltd., Architect's Department, Cardiff. Salary scale £600—£870 p.a. Applications are invited to fill positions at the Cardiff Branch Office. Salary according to age, qualifications and experience. The posts are superannuable, subject to medical examination. Five-day week in operation. Applications, stating age, experience, qualifications and salary required, to: W. J. Reed, F.R.I.B.A., Chief Architect, Co-operative Wholesale Society Ltd., 99, Leman Street, London, E.1. 2743

JUNIOR ASSISTANT required in London Architect's Office. Must be neat draughtsman and have good grasp of elementary building construction. Box 3000.

GEORGE WIMPEY & CO., LIMITED

THE Architects' Department's current work covers all types of technical, industrial and domestic projects.

Appointments are available for a wide range of experience, particularly for assistants who appreciate the contribution good design can make towards efficient construction and are interested in applying cost knowledge to detailing.

Appointments are immediately available for two ASSISTANT ARCHITECTS, four ARCHITECTURAL ASSISTANTS, and three top line ARCHITECTURAL DRAUGHTSMEN.

Salaries will match qualifications and experience, and subject to a trial period there is a Pension Scheme available.

Applicants should write to E. V. Collings, A.R.I.B.A., 27 Hammersmith Grove, London, W.6. 3050

ARCHITECTURAL ASSISTANT required—at least three years' experience. Rossington & Fogden, Chartered Architects, Tavistock, Devon. 3070

COMPETENT ASSISTANT required in Architect's Department. Good opportunity for capable man, five-day week, and Superannuation Scheme in operation. Applications giving details of age, qualifications, experience and salary required to H. M. Robinson, F.R.I.B.A., George J. Mason Ltd., 68, Bradford Street, Birmingham. 3073

ARCHITECTURAL ASSISTANTS required for Brighton office. Some knowledge of surveying required. Apply in writing stating age, experience and present salary to E. J. Thomas, Jolly, Grant & Hunter, 11 Old Steine, Brighton. 3062

ASSISTANT required in connection with expansion of extensive old established practice, about 40 miles London, in approx. £700 to £900 salary range, or according to experience and ability. Write particulars to Box 3189.

BASIL SPENCE & PARTNERS require qualified ASSISTANTS with at least three years' experience to work on university buildings. Write to 48, Queen Anne Street, W.1, stating experience and also salary required. 3187

ARCHITECT'S SENIOR ASSISTANT required, about R.I.B.A. Final standard. State salary required, experience, etc. Box 3183.

JUNIOR ARCHITECTURAL ASSISTANT approaching Intermediate standard required for Bank Architect's Department in Manchester. Reply stating age, experience and salary required to Box 3117.

ASSISTANTS required for offices in Gloucestershire. Intermediate and Final standard. Reply stating age, experience and salary required to Ellery Anderson, Roiser & Falconer, Imperial House, Stroud, Glos. (Telephone No. Stroud 1406). 3114

RICHARD COSTAIN LTD., have a number of vacancies for ARCHITECTS AND ASSISTANT ARCHITECTS to work on a major building development project in the Middle East. Salaries, which will be linked to the grade of appointment, will be in the range £1,200—£1,500 per annum, plus £60 per month cost of living allowance. No local income tax. Initial kit allowance £60. Each tour will last 12 months followed by one month's paid leave. Applications, giving full details of age, qualifications and experience, should be addressed to Overseas Personnel Officer, 111, Westminster Bridge Road, London, S.E.1. 3103

TRING, HERTFORDSHIRE. SENIOR ASSISTANT ARCHITECTS required for work on Contemporary Schools, Training Colleges and design of prefabricated forms of construction at home and overseas. Write to W. W. Chapman, A.R.I.B.A., Woodroffe, Buchanan & Coulter, 41, High Street, Tring, or phone Tring 2083 for an appointment 3046

LOUIS DE SOISSONS, PEACOCK, HODGES & ROBERTSON have immediate vacancies in their Welwyn Garden City office for Senior and Junior ASSISTANTS. Write stating age, experience and salary required to the above at Midland Bank Chambers, Welwyn Garden City, Herts. 3052

TWO JUNIOR ASSISTANTS required immediately with minimum of two years' experience. Varied and interesting work in congenial surroundings. Excellent prospects for keen assistant, good draughtsmanship and a sensible knowledge of construction essential. Please write giving full particulars to Messrs. J. W. Hammond, Lloyds Bank Chambers, Main Road, Gidea Park, Romford, Essex. Telephone Romford 40562. 3055

SENIOR and JUNIOR ARCHITECTURAL ASSISTANTS urgently required for large West Riding office. Salaries from £700—£1,500 according to qualifications and experience. Non-contributory pension scheme in operation, good prospects for advancement. Apply giving particulars of age, education, experience, etc., to Box 3053.

ASSISTANTS required, Intermediate to Final standard, for interesting Commercial and Industrial work. Salary commensurate with ability and enthusiasm. Good office conditions, lunch facilities. Apply in writing to Alan A. Briggs, F.R.I.B.A., 10 Fleet Street, London, E.C.4. 3051

KEEN and energetic ASSISTANT of about Intermediate standard required for busy private office. Write W. P. P. Grant, 565, London Road, North Cheam, Surrey. Telephone No. DERwent 0512. Salary by arrangement. 3044

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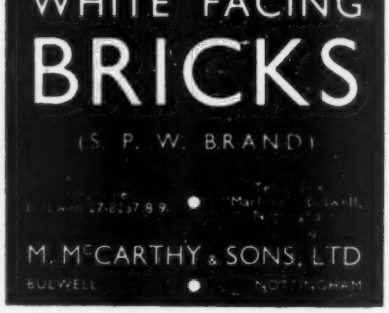
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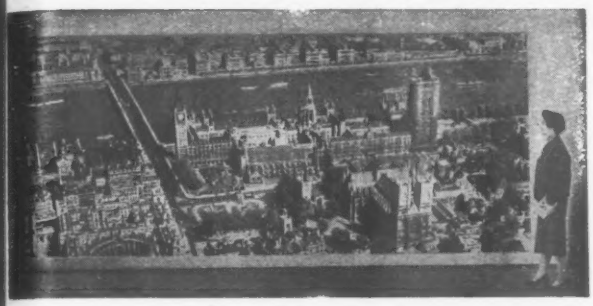
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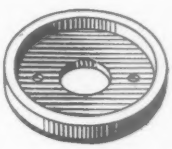
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